MONDO

2000

SUMMER 1990　　ISSUE NUMBER 2　　$5.95 / CANADA $6.95

Camper Van Beethoven

SRL's Mark Pauline

New Smart Drugs

Media Viruses

CyberFusion

Negativland
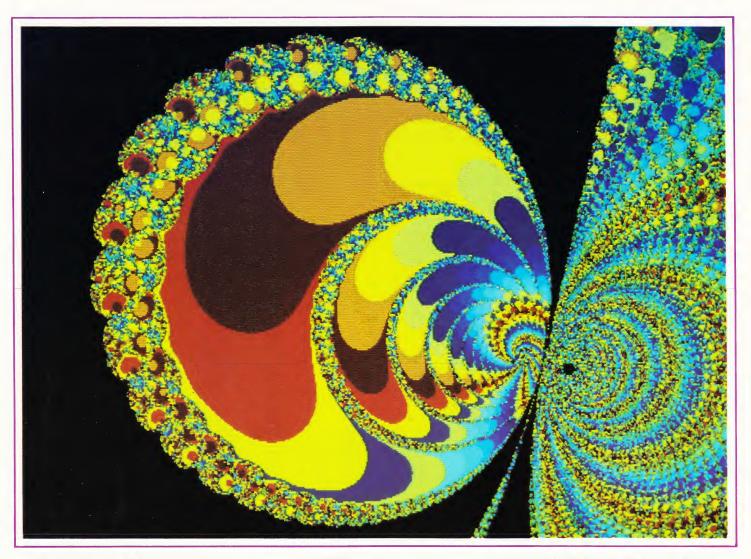
DIANA TRIMBLE
— *Grammar Queen*

A LEXICON OF CYBERSPEAK
(compiled by LEEP SYSTEMS/POP–OPTIX LABS)

ACTOR An **Otherworld**tm *q.v.,* traveler who is able to effect changes in the **Otherworld.**

ARTIFICIAL REALITY The oxymoron on the table. Stereoscopic, interactive, database-based worlds displayed with such a wide field of view that the actor is on the inside looking out, as opposed to being on the outside looking in, as with conventional monitors, no matter how large the screen. *See* **virtual reality.** *See* **Cyberspace.**
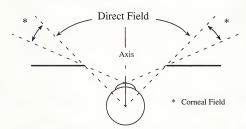
AR DEMO SET A A one time only demonstration viewer–diffuser with six **LEEP** slides—to give a taste of **Orthospace** drama. $940 postpaid, MC/VISA or C.O.D. Call today!

ARV–1 Model designation of the defacto standard viewing system optics for the AR industry. Made by **LEEP SYSTEMS/POP–OPTIX LABS.**

BINAURAL Like stereo sound but recorded with two microphones in the ear canals of a dummy head with pinnae *q.v.,* and listened to only with headphones. Eerie effect of being there.

CORNEAL FIELD Coined by us to denote regions of the visual field that are "behind the edge" of the entrance pupil of an **HMD** lens system, but which can be perceived if the eye axis is aligned with the optical axis of the lens system. Refraction at the cornea surface provides a vantage point about 1/2 inch closer to the eye lens than the center of the eyeball, hence a wider cone of view. *See* **peering field.**

CYBERFACEtm Our coinage and trademark for what we mount on your face to interface with **Cyberspace.**
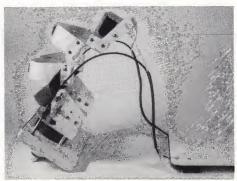
CYBERNETICS Coined by Professor Norbert Weiner for his book of that title in 1948. From the Greek for steersman, he defined it in a subtitle as "control and communication in the animal and the machine." He would have become dyspeptic at some of the uses of his word in the last forty years, but not, we think, with **Cyberspace.** He would note however, that the loop has to be closed, that it isn't cyber–anything if the actor can't interact with the space.

CYBERSEE *Also* **cybersight.** Listed for its euphony.

CYBERSOUND *See* **cybersee.**

CYBERSPACE Coined by William Gibson in his prescient novel, *Neuromancer.* Probably an Autodesk trademark. What this issue is all about. *See* **Otherworlds.** *See* **artificial reality.** *See* **virtual reality.**

CYBERSPEAK What this page is all about.

FIELD OF VIEW (FOV) A complexity. Of the eye itself we speak of the direct field – the solid cone swept out by the axis of the eye as it rotates in its socket, usually about 90 degrees except where the nose and the brows interfere, and the peripheral field—everything beyond, perceivable because of refraction at the cornea, usually about 270 degrees laterally for healthy eyes. For the limitation of the field by optical systems, *see* **corneal field** and **peering field.**

FIGGE, ULRICH Originally **LEEP** was a system of still photography. As chief **LEEP**er, Ulrich Figge has caught more of these righteous images than anyone else in the world.

HMD Acronym for **H**ead–**M**ounted **D**isplay. (See our Feathermounttm above) A viewing system that mounts on, and turns with, the head. Should provide an image filling at least the direct field of view *q.v.,* an image that changes according to the head movement of the wearer so the surroundings appear stationary.

HOWLETT, ERIC The inventor of the **LEEP** system (patents issued and pending) and founder of **LEEP/POP.**

KNOTHOLE EFFECT In which you can see more if you don't look directly. *See* **corneal field.**

LEEP COMPRESSION The compression in the **LEEP** system of the angle of view in object space (Cyberspace) to a radial distance on a flat medium approximately proportional to the sine of the angle. Permits economy in data storage and channel capacity.

LEEPtm The acronym (post facto) for **L**arge **E**xpanse **E**xtra **P**erspective.
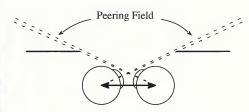

LEEPVIDEO SYSTEM I The first and still the only commercial Orthospace system. The widest view you can buy. Plug it in and fly! $13,440, puppet and all. Call today!

NASA Acronym for the **LEEP SYSTEMS**/POP–OPTIX LABS customer who started it all in 1985. *See also* VPL, IMAX, IBM, UNC, DCIEM, MIT, UNC, AFIT, who now use our optics or systems.

ORTHOSPACEtm In which the **Otherworlds** *q.v.,* seen with straight lines straight and perspective cor-

rect in every direction. It suffices to say that all angles of sight are duplicated, The scale is normally life-size, but may be changed to achieve oversize or miniature modeling.

OTHERWORLDStm Comprising remote real object spaces as well as computer generated environments and combinations thereof. Our coinage. We needed it because we serve them all.

PEERING FIELD Another term we needed—this time to describe the region directly visible only if you move your eyeball centers significantly off the viewer optical axis, an action normally not possible in head–mounts, but common with tabletop viewing systems.

PINNA *pl.* pinnae Anatomy. The external part of the ear; auricle.

POP-OPTIX LABS Predecessor of **LEEP SYSTEMS**/POP–OPTIX LABS, which brings you this lexicon. "Outfitters for **Otherworlds.**"

PRESENCE The sense of being there. Satisfied both visually and aurally by **LEEPVIDEO System I.**

PUPPET The dummy head with microphone ears and video eyes that represents the actor in any real otherworld.

REAL IMAGES These will show up on a screen, if there is a screen where they are.

REALITY, VIRTUAL OR ARTIFICIAL *q.q.v.,* Real reality will be left as an exercise for the student.

RESOLUTION Something the eyes are very good at in the middle, but dismal elsewhere. At the current state of the art, wide angle head–mounted displays are dismal everywhere. Like the eyes, the **LEEP** displays are less dismal in the middle, however.

STEREOSCOPIC From the Greek for "solid". Viewed from two slightly separated points, so that objects can be seen to be solid and separated in depth. Spectacular results from an exquisite dynamic sense in some higher animals.

TELEOPERATIONS *See* **telepresence, telerobotics.**

TELEPRESENCE *See* **telerobotics, teleoperations.**

TELEROBOTICS *See* **teleoperations, telepresence.**

VIRTUAL IMAGES What most optical systems show you, and which aren't really there, even as real images *q.v.*

VIRTUAL REALITY Sights (and sounds) that don't exist as perceived.

WHEREAT? LEEP SYSTEMS/POP–OPTIX LABS
241 Crescent Street, Waltham, MA 02154
Phone (617) 647-1395, FAX (617) 899-9602.

The Synchro ENERGIZER™

The Ultimate in Coherent - Full Spectrum Light and Enhanced Sound Stimulation

The SynchroENERGIZER™. It had to happen. A high-tech computer-driven brain balancer. Its users call it "electronic drugs," "push-button meditation," or "mind-flying."

It attaches to the user by simple headphone and goggles. One person can hook up, or millions plus can fly together. All in an altered/elevated state of consciousness or "<u>total awareness</u>".
Need to pull back from a high-tech buzz? Want to drop instantly into a body rhythm that induces a deep relaxation or sleep? That's the least of its myriad capacities.

Use the SynchroENERGIZER™ to enhance creativity or hyperlearning. Or use it to control pain or resist substance abuse. Its effects are profound and far from subtle. It is based on the most sophisticated research and clinical testing of any machine on the market. The "Bentley" of the mind machines, its reputation is based on its "<u>tested</u>" *effectiveness*. And its effectiveness is based on 23 patent claims for a "Learning/Relaxation" Device using light/sound & electromagnetic stimulation and 30 years of clinical experience, in Neuro Science.

The SynchroENERGIZER™ uses only full spectrum frequency white light, pulsed at various rates and timing cycles from 9 independently controlled med-tech bulbs. The sound is generated from a computer-controlled chip to produce 128 complete specially designed harmonics that are decidedly "<u>brain friendly.</u>" These are harmonics which researchers feel are correlated with all known safe and healthy brain states.

Both individual and multi-user systems are available worldwide at 50-plus centers. Over seven to ten million people have Synchro-ENERGIZED themselves into higher, creative states. Many have used this computer-driven system to combat debilitating dysfunctional states: fears/phobias, addictions, stress, pain, and negativity.

The "multiple-afferant sensory-stimulator" power of the SynchroENERGIZER™ can be had at a variety of price levels. The individual Relaxman™ model costs $650 and the 4A & 4X multi-user Systems range from $10,000 - $250,000.
The Model 4A SynchroENERGIZER™ is a light and sound PALETTE or realtime drawing board for altered states. Priced at $9000 with computer interface with an IBM compatible AT computer or with the 4X interface computer can deliver the stimulus to unlimited multi-users world-wide over the phone (even your Cellular phone).

7 Reasons You Should Experience the SynchroENERGIZER™

- **Productivity & Performance**
- **Deep Relaxation**
- **Enhanced Cognition**
- **Mood Equilibration**
- **HyperLearning**
- **Brain Balancing**
- **Heightened Creativity**

What lies ahead? "Doc In A Box" the "Computer Stress Check" is a remote (by phone and fax) computerized diagnostic feedback system. It can test and validate your SynchroENERGIZER's effectiveness and allow you to fine-tune your therapy. Developed in conjunction with one of the country's foremost neurological research teams, the computer doctor will allow you to detect brain and CNS/ANS cardio/pulmonary dysfunction, and disease states of mental/physical or emotional aetiology.

There are over 50 SynchroENERGIZER™ centers worldwide. Less Stress in San Francisco, Synchro Energize in New York City, Mind World in Miami, Renaissance in New Orleans and Altered States in Los Angeles. Overseas centers include: Tokyo and Osaka Japan, Sydney Australia, Paris France, Rome Italy and Barcellona Spain, to name just a few.

Synchro Tech is continuing to develop new devices and applications. Business programs for entrepreneurs seeking to invest in the Transformative should seriously consider Synchro Tech Research International™.

> **A salutary alternative to drugs in the 90's for dealing with stress, pain, dependencies, and burnout.**

RELAXMAN™

MONDO 2000

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AN ORDER OF

No matter the object's order
of magnitude, each month
CADENCE *magazine*
documents AutoCAD®s
abilities to draw anything
from a molecule to a solar
system. The world's leading
AutoCAD magazine provides
a universe of imaginative
techniques and applications
for CAD/CAM/CAE/CIM and
graphic design.

MAGNITUDE.

E DITORIAL

WOW! In our last issue we predicted that the 90's would be a time of unprecedented change, accelerations that would come as a shock to the human organism. What we couldn't have predicted is that between publication of *MONDO* 1 and *MONDO* 2 we'd: blow holes in the Berlin Wall and the ozone layer over the south pole, our friend Jaron Lanier would be on the front page of the *Wall Street Journal* with his virtual reality technology — described in the headline as

R. U. Sirius

"electronic LSD," Michael Jackson would announce the next summit with the Soviet Union, and David (*Eraserhead*) Lynch and Matt (*Life in Hell*) Groening would have the two hottest TV shows in America.

In today's paper, the alcohol-burning electric turbine engine offers new hope for the environment while the Bush administration continues to ban fetal tissue transplants — thus allowing a minority of far-right religious fundamentalists to sentence

Parkinson's and epilepsy patients to continued suffering. The AIDS crisis gives us a paradigm for how to deal with the environmental crisis and with problems of human suffering and that is *pull out all the stops* in the development of clean technologies and multidisciplinary pluralistic solutions to problems that plague us. The end of the cold war *should* make that easy.

Politically, while the East comes forward, the West becomes more and more decrepit. Rather than patting ourselves on the back for having finally seduced the East with free-wheelin' consumer hypercapitalism, we ought to be locating the next step to increased freedom and dynamism in our own sorry-assed body politic.

RUSSIA SIGNS WITH A MAJOR LABEL

While I am totally thrilled to see the East sign on with Western-style democracy and thus enlarge the freedom of its individuals, *particularly* in the area of communications, we can save ourselves and our comrades to the East from a 21st Century legalistic, megacorporate, one-world, peace-on-earth by luxuriating for a moment in the cynicism that our cyber-decadence allows.

Here's a fact. On December 1, 1989, Mikhail Gorbachev went to Rome and kissed the Pope's ring. The Catholic Pope, Gorbachev declared, is *"the pre-eminent moral authority in the world"* [emphasis mine]. Pondering this, one is momentarily tempted to bring back Stalin, but I suspect that this was an occult ritual that Gorby *had* to perform, signalling his willingness to really play ball with the international financial/banking community. Like John Lydon aka Rotten smiling at Dick Clark on American Bandstand, Gorby was doing what was necessary to sign the East with a major label. Given that this decision increases the free flow of economic wealth, communi-cations and personal freedom, it was the *only* possible decision.

At the risk of being run out of Berkeley on a rail, let me state the obvious facts. Marx was *way* wrong. Communism — posited not only as the collectivization of property but interpreted through Lenin, Mao and Che Guevara as the collectivization of the human psyche — was the *last* thing that would lead to the "whithering away of the state." Indeed, here in the West it has become increasingly obvious that — although the state still has the power to collect taxes and mount pogroms — real power has *already* escaped — via increased speed of transportation and communications — to the multinationals. What happens next, in the age of self-replicating systems; information,

genetics, nanotechnology, etc. — is that private property — or at least those aspects of private property that are oppressive and counterproductive — becomes *trivial*. It will spin out of control. Current attempts at control in the information technology and entertainment fields — through oceans of non-disclosure agreements (I see five a day), copyright laws, and litigation — are merely the proverbial finger in the electronic dike. As Bucky Fuller pointed out, it will soon be more expensive to control stuff than to give it away.

As all of this applies to the Soviets and their entourage (don't call them satellites any more!), we should expect the East to be rapidly catapulted through the changes that we've gone through and arrive at the 21st century — like us: on time, virtually *tattooed* by commercial advertising, and secretly craving stronger stimulants to keep up with the dataBabel.

EARTH ALSO!

Meanwhile, back here in the United States of Disneyland, environmentalism is on the march. Indeed, when this years' premier technofreak conference, TED 2 (Technology, Entertainment and Design; Ted Nelson, Jaron Lanier, Nick Negroponti, Alan Kay), focuses on solutions to the environmental crisis, you know we're in deep shit. From holes in the ozone to global warming, deforestation (particularly in the Amazon) and — just in case we needed something visually poignant to drive it home — massive oil spills, it's hard to decipher fact from apocalyptic wishful thinking. It's also hard to avoid maudlin Earth Day advertising, George Bush-the-oilman's plant-a-tree program, the Berkeley recycling police, or the return of Lady Bird Johnson.

Indeed, Grateful Dead lyricist, author and *MONDO* correspondent John Barlow reports that the White House called him to ask if the Dead would support Bush's plant-a-tree program. (It was the same week that I inquired about whether any of the band members would participate in a *MONDO* event.) IT'S A SMALL WORLD AFTER ALL!

In *MONDO* 1, we declared that "Eco-fundamentalism is out." Well, perhaps we spoke too soon. Neo-Luddites like Earth First and the "deep ecologists" are a growing and ominous presence. Turning the clock back on modern technology would spell out a death sentence for 90% of the world's population through starvation and disease within a matter of years and the resulting social chaos would make a couple of nuked cities look like a vegan picnic. A couple of years ago, I saw Gary Snyder advocate settling and living one's entire life in the same place, in harmony with the local ecology. He told this to a cheering audience of San Franciscans, 90% of whom had moved away from some ingrown, slow-moving, boring little town to this culturally hip, intellectually racy, polymorphic urban socket where — of course — it's easy to go see alternative poet-philosophers like Gary Snyder.

I'm not belittling the genuine concern about our ravaged ecology or the genuine thirst for harmony with the environment. In fact, we are planning a future "Earth Also" issue, on ways to achieve an ecologically intelligent cyberculture, and we invite readers to correspond with us. And I suspect that our declaration about Eco-fundamentalism is actually correct. For every new convert to Earth First, there are probably two thoughtful, pluralistic envrionmentalists applying new edge technology to the problems.

WHY THE HIGH TECH/COMPUTER WORLD NEEDS MONDO

...This slippery magazine seems to center on the superficial, but voyeuristically ecstatic, vision of new-age hype obscenely coupled with the (self-identified) leading edge of the technological illusion. Punks, hippies, hackers, cyberpunks, PCs, fringe "science" & downright pseudo-science, videos, CDs, and conspiracy theory all combine to create the publishers' version of a hyper-hip consumer's wet dream.
　　—*from* ANARCHY: a journal of Desire Armed

And that's just a few of our selling points. It's obvious that the New Edge, both cultural and economic, lies in the evolution of creative, interactive technology. From desktop video to hypermedia, from art software based on Mandelbrot sets to virtual reality, from the completely portable office-in-a-suitcase containing fax, computer, modem, and phone to the power of supercomputing on a desktop, the computer/high-tech industry has already reached beyond the limits of what a dulled, prosaic, practical-minded, slow-moving, middle-of-the-road public is going to find useful. Call it a hyper-hip wet dream, but the information and communications technology industry requires a new *active* consumer or it's going to stall. Let's face it. Even Sculley knows that dorky office management presentations are not going to create enough enthusiasm around "Multimedia" to make a return on Apple's mega-investment. And Jaron Lanier will be the first to tell you that virtual reality is only as interesting as the people inside it. Surely the same is true of Project Xanadu's hypertext world library software. This is one reason why we are amplifying the mythos of the sophisticated, high-complexity, fast lane/real-time, intelligent, active and creative reality hacker. *We* want the new fiber optic lines - the next generation of "phone lines" that can turn our kitchens, living rooms and bedrooms into hypermedia/ virtual reality sending and receiving stations. A nation of TV couch potatoes (not to mention embittered self-righteous radicals) is not going to demand access to the next generation of the extensions of man.

Well — call it cyberpunk, call it reality hacking, call it a hyper-hip consumerist wet-dream — but it was obvious at Verbum maga-zine's Digital Be-In this April, that the new tech "counterculture" is here and in full frenzy.

LET'S GET IT ON!

But before we get *too* carried away with how hyper-hip we are, let's take a look at our failings. While our brothers and sisters in China, Czechoslovakia, Poland and Romania inspired us by taking their demands for the future into the streets, and while the sight of Germans dancing on the Berlin Wall reminded us of our own attempts to "tear down the walls," we've got fundamentalists of both the right and the left telling us what we can do with our brains and bodies. Would any of you have believed, back in the 1970's, that we would have allowed the Christian Right to keep the newer, safer birth control pill, RU-486, off the market? Would any of you have believed that we would have put up with the phantasmagorical "war on drugs"?

Like the Russians, East Germans and South Africans, it is time that we move on to *our* next level of freedom and dynamic change. As Terence McKenna recently told an audience, "what people don't realize is that communism is just the *first* to go." Indeed the revolution against state communism was a revolt against corruption and bureaucratic arrogance, a victory for increased pluralism, democratization and individual freedom. Their decrepit social structure needed an enema. So does ours. •

Dear *MONDO 2000,*

I am an employee at Intel. Because of the position I hold, I am able to glance at many of the interoffice documents that transfer hands continuously...

Hang on to your britches! There is a lot of talk going around. While the i860 has 1 million transistors on a chip, there are plans of test-marketing the i870 and i960 with 2 - 2.5 million transistors on a chip, by the fall of 1990! Truly personalized computation is finally here! Cray computers the size of wallets. Not mirrorshades, cyber-shades! Supercomputer sunglasses that help you navigate. The applications are so staggering that — as a futurist — things tend to get pretty blurry post-1995.

From another agent in the Network
San Jose, California

MONDO 2000 #7 was (and still is) a good issue. But, in a cyberpunk issue; what happened to Sigue Sigue Sputnik, who actually *are* cyberpunk? And what about Mark Pauline... a real live cyberpunk? And along the same lines... what about an article about the effects of mixing LSD, floatation tanks, mind machines and sex. Why go half way?

In my mixed state of ignorance and understanding, I think this high-tech mysticism movement seems to be a type of sanity assassin. I have yet to see/experience a mind machine that can come close to LSD, etc. Altered states, yes... mysticism, no.

I was very disappointed in the censorship of technical diagrams that should have accompanied the Morgan Russell article. This is the information age, isn't it? R. U. Siriusly selling out?

John Lilly in conversation was a treat. Andy Warhol's aura was inserted between pages 84 and 85. Was that in everyone's issue, or did I just get lucky?

Mark Bell
NECROEROTICA GALLERY
Miami

Sigue Sigue Sputnik?...

The automated teller diagram decision was a weird process. Everybody was a little bit nervous about it, but it wasn't until the production staff objected to it on aesthetic grounds and asked if it could be re-drawn at the last minute that the problems came to the surface.

Basically there were two problems. One is that the ATM hack — as we currently know it — allows you to steal from existing accounts rather than allowing you to set up an account and "rob banks." Up to a point, the banks are covering the customers losses. But if we examine that more closely, it becomes obvious that the customer would, at least, have to prove it. Furthermore, good (i.e. rich) customers would probably be taken at their word while poor customers would be suspect. Finally, those of us who are less anal and less money-centered than the norm tend to (as it were) lose our balance. We thought that — delusions about overthrowing the International Banking System aside — poor people would be the primary victims.

We also thought it was worth showing how the big, solid system is vulnerable to that kind of hack and, thus, published the article. But we have better — and less ethically ambiguous — hacks planned for future issues. We would rather encourage hacks that are eminently supportable.
R. U. Sirius

Dear Mr. Sirius:
I just wanted to thank you for the copy of the Cyberpunk issue which included an interview with Steve and me on the Rise and Fall of *Max Headroom.*

I very much appreciate the space and also the fact that my name is correctly spelt! However, there is one inaccuracy that is important to me to correct.

Max was, of course, visually influenced by *Blade Runner* but Ridley (Scott, director of *Blade Runner* - ed.) was never lined up to direct the British version. Rocky Morton and Annabel Jankel were always the directors.

Ridley's involvement came much later on and following his work on the Max Coca-Cola spots. Ridley was, in fact, coming on board for the ABC Network series two years after the English debut but this did not materialize due to contractual problems.

I would like to keep the record straight.

Best wishes, thanks again, and look out for the *Cyberforce, Macrochip,* and *Max Headroom* features.
Peter Wagg
Warner Studios
Hollywood

Dear R.U. and Mu and Mondoids of all Genetic Strains:
Major meme shift message. Reality override. you must (whip it ... no, wrong metaphor), you must get ... that's it ... get *THE SECRET GOVERNMENT* by Milton Cooper. Very major metaparanoia.

People of Earth: a little known fact that seems to have savagely eluded me is that insectoids from UFOs (Synchronicity note: the radio just started playing "The Wasp" by Benjamin Britton as I write this) have taken over the earth and are living in splendor underground in Arizona, Nevada, and New Mexico. The U.S. and Soviet governments are collaborating with them. The NSA and CIA were set up to track and handle them. They like to eat people for their

Dear Dr. Crick,

As an editor for *Mondo 2000* magazine I represent a great number of people who read and loved *Life Itself*. Nearly a decade since the book—and almost 20 years since your original paper with Orgel—many of us are eager for an update. You may not fully realize how far your idea of Directed Panspermia has spread.

Some of your ideas have been incorporated into the startling original world picture of Terence McKenna. Terence is our most popular columnist and a beguiling storyteller. He is an author, well known lecturer and head of Botanical Dimensions, a research institute devoted to preserving the ethnobotanical riches of South America. Based in Hawaii, it functions as a gene bank for rare Amazonian medicinal plants, a field station, and a repository of pharmacognostic lore. Terence also has some intriguing notions about the fractal nature of time and has designed software to communicate his concepts in a very graphic, compelling way.

Although some people see Terence as a conduit of inspired blarney, other have him pegged as one of the great cosmologists of our era. All bets are that he'll be the next head of Esalen Institute. He is, without a doubt, the most charismatic thinker I've run into in some time, and I feel it would be a tragedy if you two inspired Irishmen did not meet. I would like to help make this happen if both your very busy schedules permit.

I understand that your current focus is on cognitive science and neurochemistry. This has also been a focus of Terence's and his brother Dennis McKenna with whom he often collaborates. Dennis is now with the Stanford University Neurology Department, characterizing new receptor sites in the brain. Given the confluence of interests here, I feel it would be fruitful to try to set up a meeting between you and the McKenna brothers.

Terence indicated that "a few hours together one afternoon" would be very nice and that his schedule for the remaining year will allow a visit with you at the Salk Institute. I would like to come along and record all or a part of your conversation and—if it's to everyone's liking—publish it in *Mondo 2000*. A Bay Area software company, Molecular Designs, has also expressed interest in contributing some vibrant 3-D computer graphics to complement the text.

The most important thing to me is that the two of you meet. If, additionally, this meeting might be worked up into a feature for *Mondo 2000*, we would feel most privileged!

Best,

Jas. Morgan
Music Editor — Mondo 2000

December 1, 1989

Mr. James Morgan
MONDO 2000
────── ──────────
────────── ── ──────

Dear Mr. Morgan,

Not a hope!

Yours sincerely,

F. H. C. Crick

FHCC/ml

hormones and blood and conduct horrible genetic experiments. They controlled Hitler and manipulate us with occultism and religion. Headed by Krill, another UFO group, the Gray Aliens run the Trilateral Commission and the Foreign Affairs Council from 75 massive underground sites in the U.S. desert. There is no defense against them. The U.S./Russians have advanced colonies on Mars and the Moon and use the space program to funnel money and hide the missions. The world will end in 1999 and scientists have time-travelled there to confirm it. Are you with me? The insects will take over in 1994 and make most of us slaves to build escape vehicles for the remaining chosen few, like George Bush, who will go to Mars just before the holocaust. One out of 40 people have been taken aboard spaceships and given implants and will be turned against us, you see. The CIA is pushing drugs to provide the money for this major project and to keep the insectoids living in the style to which they have become accustomed. The CIA is giving ghettos guns and drugs to turn us against guns so we disarm ourselves so they can take over and put us in concentration camps and is spreading AIDS to reduce the population. Just thought you'd like to know.

Xandor Korzybski

Dear Editor,

I can hardly express my delight with the first issue of MONDO 2000. You have done a magnificent job, and I have never before seen so much exciting new information in one issue of a magazine. Praise be!

However, I would like to correct a group of errors — a few disappearing exponents — that the typesetter allowed to enter my article "Cyber-Evolution Montage." Speed of travel has not increased 102 times since 1900 but 10 to the second or 100 times. Known energy resources increased, not 103 times, but 10 to the third times, explosive power of weaponry not 106 times, but 10 to the sixth, and speed of communication not 107 times but 10 to the seventh or 10,000,000 times.

While I'm complaining, or explaining, my original title was "Cyberevolution," not Cyber-Evolution. I wanted to suggest both possible meanings in a Joycean manner: cyber-revolution and/or cyber-evolution.

Oh well, every one of my books has had errors worse than these. I sometimes wonder if the typesetters are part of some Vast International Conspiracy against me…

Keep the lasagna flying!
Robert Anton Wilson

Dear Mu/R.U.:

Had a great time with MONDO 2000. Very stimulating, more so than any other magazine I've seen on the stands lately. Congratulations. Please thank whomever sent me a copy.

I like quoting Richard Stallman to some of my Mac friends, and would like to see some of his philosophy prevail over the corporate silly asses who disgrace the pages of MacWorld and MacUsury. I felt sorry for Mr. John Lilly, and wish him luck in finding a girlfriend or nursemaid. All the various hacker/virus/new tech computer info was illuminating. Good to see that info in a radical context rather than in adsheets pimping for the hard/software industry.

I wonder if these mind machines actually work as advertised. I tried the SynchroEnergizer for an hour, and succeeded (barely) in putting myself in a very minor trance, but then I'm able to actually do better *without* the machine. Maybe I was beta testing.

All my best,
Adam Parfrey
FERAL PRESS

Dear *High Frontiers/Reality Hackers/ MONDO 2000,*

Drugs are obsolete?! What the hell are you talking about!? The thing we call "mind" is in fact a complex set of chemical interactions. Life itself is just a brew of different shades of various juices playing off each other with the subtlety and intricacy of the most subliminal of thoughts.

I'm certainly not saying "back to nature" in the sense of moving to the

mountains and trading in your car for a new set of hiking boots and a complete set of *Foxfire* books. We have to admit, however, that the moral stigma that we as a culture are now impressing on certain types of illicit drugs is unfounded. If what R.A.W. suggests about acid heads slipping through the "drug-net" is true [Cyber-Evolution Montage, Piss Wars — MONDO #1) then these moral judgments might have to be confronted sooner than anyone realizes. By refusing to face the original revelation of the unknown (through mind altering plants) to mankind/womankind by its creator, Nature, we are creating yet another Adam and Eve, Man vs. Nature scenario.

I feel very positive about the work you are doing and the groups you are uniting with your magazine. But unless you are just trying to lay low like the rest of us "pro-drug" people, I cannot understand why you would introduce your new mag with such a ludicrous assertion as "Drugs are obsolete."

In a time such as now, every day is important in the struggle to save the disappearing eco-systems of our planet. I am convinced that naturally induced altered states of consciousness will play a key role in our remembering our "proper place in the food chain." We must not forget that it is reason and technology which are our tools and that the Earth is our Protector/Provider/Teacher — NOT THE OTHER WAY AROUND. Until we incorporate this balance into our perspective, we will continue to advance in our rate of decay.

As I see it, we seem to mimic the Roman Empire more each year. So we might look back in history and take a close look at this once great civilization: a society without a spiritual identity (created by the unrestricted interaction of the conceptual subjective reality and the natural objective reality; or the collective subjective reality of all living and non-living things), no matter how well it is organized, is doomed to extinction.

Concerned,
Anadenanthera
Cincinnati, OH

Obviously, we live in a drug-saturated society where the major economically-hallowed drugs (coffee, tobacco, alcohol, credit cards, television) are not even perceived as drugs. "Drugs are obsolete!" was intended not only to ingratiate ourselves with our mid-West printer, but also to fan controversy that might help us redefine the very word "drug."

Does anyone out there know the etymology of the word? Well, it means simply "dry" from the L.G. "droge." In more specialized parlance, it means a substance with pronounced bioactive properties that may or may not be habituating — or addictive. In this, the "zero tolerance/infinite hypocrisy" era, we have learned that altered states are admissable as long as you do it the hard way — with machines. So until they legislate against altered states directly — and that would include deja vu, dervish dancing, lucid dreaming and falling in love — I think we're safe!

Queen Mu.

Dear R.U.

The 1990s are here, and it's *our* turn to lead now.
We have ten years to whip this place into shape for the Third Millennium.
Accept your role as a key agent of social change.
Get serious. Lay it down. If *you* don't, who will?
Don't worry. People will follow. It's time. Let's go.
Peace & love,
Johnny Goo-Roo
Zvortyl
Phoenix, Az
11-7-89

Sorry. You caught me half-astral projecting.
R. U. Sirius

Building The Cornucopia

• Invisible robot ships sailing the seas of our bloodstream, restoring worn and damged cells not only to health but to youth. What happens when the vital lifespan is extended — virtually overnight — to, say, 500 years?

• Designer bacteria planted in the Earth's soil and water, gobbling up pollutants.

• The computing power of a Cray, and all written knowledge, finespun within the space of a pinhead.

• A generic, single-purchase, inexpensive molecular-mix in every consumer's cupboard, capable of taking any shape and compostion, depending on the moment's need: a toothbrush, then a bathrobe, then a coffee maker along with cream and a cup.

— from i have seen the future & it is small, Marcy Wilcove, LA Reader, Nov. 1989.

By Ed Niehaus

The First Foresight Conference on Nano-technology

In his book, *Engines of Creation*, Eric Drexler coined the term nanotechnology, meaning the inexpensive and complete control over the structure of matter. His predictions of the future of engineering are both disturbing and profoundly hopeful. Nanotechnology may offer inexpensive solutions to many of the major problems facing mankind, including hunger, housing and pollution. Nanotechnology could also result in world domination by whomever first achieves the breakthrough to "self-replicating assemblers," the virus-sized computer-controlled man-made robots Drexler predicts will become our servants/saviors in the next century.

The First Foresight Conference on Nanotechnology, hosted by the Stanford Department of Computer Science and sponsored by the Foresight Institute and Global Business Network, was the first major conference to examine molecular systems engineering as a path to nanotechnology. Held on October 27-29 in the wake of the Bay Area earthquake, the conference in Palo Alto drew about 150 invited participants from three continents and many disciplines. It was a success by any measure.

The Saturday sessions featured scientists defining the state of the art in various enabling technologies leading to nanotechnology. By Saturday afternoon, participants had a good overview of where work stands in these fields: further along than conference chairman Eric Drexler predicted in 1986, but still an undefined number of decades away from nanotechnology, which was defined as "thorough control of the structure of matter."

The excitement was palpable. Researchers in protein design, chemistry, biochemistry, biology, scanning tunnelling microscopy, quantum electronics, computer science, micromachines, physics, molecular modeling, and molecular electronics were all drawn together to discuss a common theme: understanding and building structures, devices, and systems on the scale of molecules. Asked to rate the conference on a scale of one to ten, one conference attendee said "Eleven!"

Nanotechnology has been described as *the* manufacturing technology of the 21st century. Some argue that it will be able to manufacture almost any chemically stable structure at low cost. If realized, such precise fabrication abilities could be used both to improve existing products and to build products that are impossible within present constraints. Based on estimates of parts count and power dissipation, components of molecular size could make a single desktop computer of the future more powerful than all the computers in existence today combined. Devices smaller than a red blood cell might circulate through the body and attack and remove both fat deposits and infectious organisms. These are potential long-term applications of nanotechnology, but the conference started with an examination of where we stand today in efforts to engineer molecular systems.

• Michael Ward of Du Pont described the design for self-assembling systems created by controlling the charge on individual molecules. If the pattern of electrostatic charge on individual molecules is properly controlled, then it is possible to control many properties of molecular aggregates.

• Federico Capasso, head of Quantum Phenomena and Device Research at AT&T Bell Labs, discussed current work on exploiting quantum effects in devices built with controlled bandgap variations on a nanometer scale.

• Tracy Handel of Du Pont discussed the de novo design and construction of a

protein by William F. DeGrado's group. This work provides a dramatic illustration that protein engineering is possible, and thus that objects of multi-nanometer scale can be designed and built to precise molecular specifications.

• Jay Ponder, of the Department of Molecular Biophysics and Biochemistry at Yale, described systems for molecular modeling and for the computer-aided design of proteins. He reports that an algorithm developed in collaboration with Frederic Richards has been quite successful in generating sequences of hydrophobic amino acids that will successfully pack to form the core of a protein with a specified backbone geometry. Molecular modeling is of general importance in molecular systems engineering because the proposed structures are at present often expensive to synthesize and characterize. Longer-term proposals (under examination for exploratory purposes) may involve structures that are entirely beyond today's synthetic capabilities. In either case, molecular modeling can frequently distinguish between workable and unworkable proposals.

• Robert Birge, Director of the Center for Molecular Electronics at Syracuse University, reported on attempts to build a large optical memory, with access times below 2 nanoseconds, using bacteriorhodopsin as an optically activated molecular switching element. They currently can achieve 20 nanosecond access times, the major limitation being the speed at which the optical beam can be positioned to "read" or "write" single bits.

• Norman Margolus, of MIT's Laboratory for Computer Science, explained the known theoretical limits to computation, perhaps more properly termed the lack of known limits. Quantum uncertainty, thermal noise, and other factors commonly thought to limit computation are, instead, merely constraints. By designing computers in an appropriate way (for example, by building reversible computers) these constraints may be satisfied without loss of speed and without requiring any fixed energy dissipation per logic operation. Even with practical constraints, quantum computers that dissipate much less energy than thermal noise per gate operation seem possible, and gate speeds in the femtosecond range seem plausible.

SOCIAL IMPLICATIONS

On Sunday afternoon several talks explored the future implications and policy issues raised by this new technology. This process was a signal achievement: informed and spirited discussion of the consequences of a powerful new technology decades before development is completed.

• Bill Joy, Vice President of Research and Development at Sun Microsystems, considered what might be done with a trillion processors. He said truly large amounts of computational power would provide us with a new tool which would let us model and understand both physical phenomena and our environment better, and so let our society make better decisions.

• Ralph Merkle, a computer science researcher at Xerox PARC, discussed techniques for controlling artificial self-replicating

systems. While attractive from an economic point of view, such systems must be designed to avoid any opportunity for unchecked replication and mutation. While *Star Trek* has popularized the idea that "nanites" could rapidly evolve into intelligent social beings capable of negotiating for their own planet, this popular vision appears highly implausible. The simplest and most practical artificial self-replicating systems will have inflexible designs and special raw-material requirements. Unlike anything in nature, they will be constitutionally unable to adapt and change. Nonetheless, regulation of the design and use of such systems seems essential to ensure that dangerous new capabilities are not added by irresponsible or malicious parties.

• Greg Fahy, a researcher with the American Red Cross, discussed the medical implications of progress toward nanotechnology. Aging is a consequence of molecular changes that take place within the body, including changes in genes and their expression. Experimenters have successfully slowed aging in experimental animals. If this work can be extended to humans, it should result in increased decades of healthy life.

The conference closed with two presentations on the broader impacts of technological advances. Economist Gordon Tullock of the University of Arizona cited historical trends showing that, although individuals can be hurt economically by technological advances, the overall effects have been positive. Arthur Kantrowitz of Dartmouth argued for keeping research programs open rather than classified, suggesting that if classified programs *must* exist, they will benefit from parallel research programs which are open. •

ALTERN

Cold Fusion Refuses To Die

By Gareth Branwyn

Despite the jeers of mainstream physicists and general dismissal in the mass media, University of Utah researchers Martin Fleischmann and Stanley Pons' Cold Fusion refuses to die.

• Professor Robert Huggins of the Stanford University Schoot of Engineering recently reported that he, too, was able to confirm a net energy gain using a process similar to Fleischmann/Pons. "The reaction in the cooler was real. It won't go away," Huggins declared despite harsh criticism from colleagues in the Stanford Physics Department.

• A carefully conceived and controlled experiment in Bulgaria also showed a postitive reaction. The experimenters also issued a strongly worded paper defending the Fleischmann/Pons procedure.

• On November 15, 1989, Pacifica News reported renewed optimism on cold fusion, claiming that 21 labs had reported excess heat in their experiments.

• At the University of Houston,

one of the pioneers of high-temperature superconductors, Paul Chu, affirmed the Fleischmann/ Pons effects.

• University of Texas experimenters reported the occurence of heat and tritium, despite their extensive efforts to disprove the results. They had so much trouble accepting the conclusions of the experiment that they searched high and low trying to prove that somebody was sneaking in with tritium to produce the positive results. However, extensively controlled experiments verified the results.

• According to the *Wall Street Journal* (Nov. 30, 1989), two separate groups of Japanese researchers have reported "significant" results from their experiments. Yoshiaki Arata, an engineering professor at Osaka University, counted 100 million neutrons per second for a period of forty hours.

If cold fusion turns out to be achievable, it should ultimately lead to a clean and virtually unlimited energy source. •

Let's face it, TV sucks. Or, more accurately, TV programming does. Television and video technology has always promised "to enlighten, entertain, and bring the world into our living rooms." What has happened during this process to leave us with the worst kind of visual junk food, playing to our basest instincts? Money? Power? Advertising? Brain-dead TV executives? Probably all of these, not to mention the drooling masses who have shaped programming, even as it has shaped them, in an endless recursion of mediocrity. Is there hope? If a growing network of public access pioneers have their way, television could finally become a medium for public education and creative democracy.

Most people don't realize that their cable service came with a significant bonus. Your cable company, in order to gain their franchise, had to agree to provide television training, equipment, and studio facilities to the general public, free of charge in some locales, nominally priced in others. In many cities, you can take classes and start your own show, in a matter of months, for less than $100. And what you do with your show is very open-ended. Although some public access programs have had problems with censorship, most cable companies try to avoid content issues as much as possible. They'd rather push the whole PATV issue aside and get on with the real business of hooking you up to pay channels that recycle the same signal 24 hours a day.

Public access shows are a mixed breed. Ethnic shows, college lectures, book chats, "Young Republicans Tonight" and similar political yawn-fests abound. Some PATV channels have been infiltrated with hate shows, hosted by the Klan or neo-Nazi groups. One show we talked to was sandwiched between *Satanic Rituals* — offering episodes like "How to Rob Graves" — and a weekly televised Klan gathering. Interestingly enough, their program got heat for showing a segment on Greenpeace!?! In amongst this outlaw territory, where anything is possible and quality is rare, a few shows have managed to get national attention (and distribution) for their

A TV TIVE

innovative programming and their dedication to making PATV a viable community medium.

• Deep Dish TV Network is the nation's first public access satellite network. It broadcasts a seasonal series of half-hour programs free to public access stations and home satellite viewers. Deep Dish offerings tend to be political and left-leaning, with shows covering such themes as the farm crisis, AIDS, aging, militarism and Central America.

• New York's Paper Tiger Television has gone a long way towards providing a very smart show at an approachable cost. One popular series of PTTV episodes had well-known cultural critics reading and responding to popular papers and magazines (Herb Schiller reads *The New York Times*, Murray Bookchin reads *Time*, Tuli Kupferberg reads *Rolling Stone*). Other shows have taken a critical look at Ted Koppel's *Nightline*, art censorship, *The Washington Times'* Moonie ownership, and the Baby M case. PTTV's production is modest, light-hearted, and surprisingly effective.

• Perhaps the most prolific alternative TV is underground music and art shows. These programs cater to a young audience that's disenfranchised with commercial music television and looking for something different. *Arizona's Bohemia After Dark* offers independent punk videos as well as live concert coverage and band interviews. Experimental video producers regularly contribute to the show's DadaVision segment of new video art. Classic clips like Steve Allen's be-bop interview of Jack Kerouac on the old *Tonight Show* have also found their way to Bohemia. San Diego's cable signal is regularly "jammed" by the mysterious Jonathan X and his *Art Maggot Hysteria*. Jonathan believes in "art attack" as an effective means for socio-political change. His free-wheeling shows fade in and out of music videos, art shorts, street talk, and other cultural detritus, all threaded together by swirly psychedelic bumpers and JX's rap-like messages of subversion. *Real George's Backroom TV* is a popular watering hole for those involved in the Albany, NY music scene. The very busy George Guarino has taped almost a hundred episodes of his program which is now widely distributed to most major markets. He also publishes a free music 'zine and spins disks weekly at local clubs.

• *The 90's* is a Chicago-based alternative "news magazine" that's exploring territory similar to the above shows, but offering its wares to mainstream public stations. While more polished than most PATV shows, it's informed by the same sense of street-level reporting, citizen participation and general irreverence. Segments weave in and out of feature stories on homelessness, drug abuse, and other social ills, and independent art films, video letters from regular contributors, and commentaries from "visionaries of the 90's."

So far 25 public stations are broadcasting the series, with more signing on every day. The show is also available via satellite.

Resources

All these programs are available to other Public Access stations through an exchange process called "bicycling." If you would like more information on getting these shows on your PATV channels, you can write: Deep Dish & Paper Tiger TV, 339 Lafayette St., New York, NY 10012; Art Maggot Hysteria, PO Box 7687, San Diego, CA 92107; The 90's, 400 N. Michigan Ave. #1608, Chicago, IL 60611. •

Fast, Cheap & Out Of Control: Artificial Life In The 90's

Kevin Kelly

Artificial Intelligence (AI) — the attempt to program machines to think like humans — seems to be a rapidly declining field of interest, supplanted by the exploration of Artificial Life (A-Life). A-Life attempts to create and unleash myriads of small semi-smart "agents" in neural nets and other connectionist computer domains, and let them learn or evolve their own way to appropriate adaptive behavior.

On February 5-9 of this year, a diverse group of scientists, technologists, and even a performance art group (Survival Research Labs; see Mark Pauline interview in this issue) met for a show-and-tell session about developments in this emergent field. Rodney Brooks, head of the MIT Mobile Robot Project coined the slogan for the high tech nineties; "FAST, CHEAP, AND OUT OF CONTROL," to drive home his contention that the near future of A-Life will involve (in the words of Stewart Brand) "making lots of funky little robots that can flock and nibble at problems. For instance, you could send a horde of the little buggers to the Moon with general instructions about preparing a Moon Base site. Made a foot high with bicycle chain and such, they could have the deed done in five or six years, just nibbling dumbly away."

R. U. Sirius

Big Ideas

Some of the Big Ideas that emerged from the conference:

• Life is a phase transition, and tends to bloom "on the border between boredom and chaos."

• Human-designed genes are no match for natural evolved genes.

• Punctuated equilibrium can be demonstrated in artificial evolution.

• There is a nested heirarchy of control in lifelike systems.

• There is a social taboo against experimenting with computer viruses.

Synthetic Biology

David Campell made the welcoming speech. He suggested that A-Life is an attempt to design a "synthetic biology." According to Campbell, this field is already introducing new diversity involving new models of life.

Chris Langton, co-organizner of the conference was next up. According to Langton, life is a process that is not bound to a specific material manifestation. A-Life will enable us to disassemble natural systems in a way we can't do in nature, either practically or in an ecologically sound way. The main task is discerning the dynamics of how the macroscopic emerges from the microscopic.

Langton works with cellular automata (CA) — huge grids of square cells imagined in computer space. Cells can either be dead (off) or alive (on) depending on a set of complicated rules regarding their neighboring cells. The recursive relationship causes the cells to "behave" in a manner similar to simple living cell cultures of bateria. By running thousands of CAs under every possible rule and then measuring whether they had complex structures without being repetitious, he was able to map out their self-organizing behavior and graph the results. Among the resulting insights:

• A-Life might be a phase transition — a sharp, thin line between periodic or static routines (solids) and non-periodic chaos (liquids). This gave rise to a common call during the week to "life being lived on the edge of chaos."

• A secondary insight is that "states of matter might be states of behavior."

Later at a press conference. Chris Langton responded to the question of "What is the use of studying Artificial Life?"

• It gives a picture of nature as a whole.

• We need to study A-Life because it is inevitably going to be with us. Computer viruses are an example.

• It's a better way to engineer complex software — if you can't build it, you can evolve it.

• A-life is a means to study biological life in a simulated form and therefore is easier and safer than actually messing with the biology of life itself.

Programmable Matter Machine

Tom Toffoli, master cellular automata (CA) pioneer, entertained the gathering with cybernetic koans and parables in a lilting Italian accent. Toffoli is working on a "programmable matter machine," a new super-computing architecture one thousand times more complex than any current super-computer. Called the CAM-8, it will allow the detailing and multiple levels of activity he wants for A-Life.

The Formula For Inventing Sex

Early in his talk, Danny Hillis, the inventor of the Connection Machine, gave the formula for inventing sex. He titled it "How to make sexual evolution":

• Make a random start.
• Score fitness.
• Select survivors.
• Choose mates.
• Combine genes.
• Mutate next time around.

This was the first time A-Life sex was introduced. In the context of the week, the participants found it pretty exciting.

Hillis sees A-Life as offering a new interpretation of biology. He says the reigning dogma is that the "natural order" specifies certain roles for organisms in nature. Using the example of oak trees, he said that you can't separate an oak tree from its forest, or a forest from a biome. Ecologists are beginning to understand that "oak tree" and "oak forest" are not only fluid and continually being re-invented, but they are almost a phantom as separate entities. Like Richard Dawkins of *The Selfish Gene* fame, Hillis says "ideas of independent genes are illusory." An "oak tree" includes all the parasites that keep it going evolutionarily, and vice versa. It's a perspective of ever-widening circles of symbiosis.

Perpetual Novelty

John Holland is an elfish character of indeterminate age who delights in surprising people. He is also the acknowledged master of the field of genetic algorithms. Holland's goal is to design a system that will get complexity from natural selection as opposed to the "artificial" selection in Richard Dawkins' landmark program Biomorphs. In Dawkins' system, the human operator picks out which mutation to breed and then his program evolves it. Holland insists that the selection criteria itself be an emergent property of the program.

Holland came up with the most sophisticated artificial world I've seen yet. It's a disembodied, pictureless world — all numbers rather than graphic representation. Nonetheless, it's closest to introducing many of the parameters that ecological systems of life have. Holland calls his world Echo.

In Echo, learning and eating are the same. Echo's creatures live in a grid-land, a wide open plane divided into squares. They eat elements. Some squares have fountains that dish out abundant elements. Echo's creatures head toward these fountains to consume and be energized. The elements are short bits of code. While the bits of code are food, they also serve as the genes of each individual.

With competition for limited resources, algorithms that learn over time, and mutations brought about by sex, Echo has a wonderfully dynamic ecology. Holland says he is after "a new mathematics of perpetual novelty." It is this perpetual novelty, he claims, and not equilibrium, that equals ecology.

THE SPIRALING GRACE OF PRZEMYSLAW PRSUINKIEWICZ

Przemyslaw Prsuinkiewicz, whose work in the field is seminal, was detained by pneumonia but some of his work was shown by associates. Prsuinkiewicz' current work is to re-create the growth of embryos. Together with Martin DeBoer, he has developed recursive rules for the early stages of a single cell dividing into multicell globes with the differentiation of cell types. For instance, they modeled rules that display a color/shape computer graphic of a fern spore growing. After a cell divides, the two new halves assume their own optimal shape on the sphere, pushing and jostling neighboring cells to garner the room they want. This constant shuffling of territories is sort of a micro-plate tectonics. The cell plates snap and bulge somewhat like soap bubbles maximizing the space in a washtub. Even more sophisticated, Prsuinkiewicz used L-systems to simulate the spiral patterns of a growing snail embryo.

The major advance Prsuinkiewicz has contributed to the problem of growing an A-Life form, is to bring the element of time into the set of growth rules. When DeBoer showed Prsuinkiewicz' film of growing A-Life plants, I was riveted. There was the uncanny recognition of a time-lapse film of real plants, surging upwards and out, unfolding themselves. His maturing plants gave off an aura that was decidedly organic. There was a grace on the screen that was neither nature nor machine.

SIX-LEGGED WALKERS

At the first A-Life Conference there was a 4H Contest for the best A-Life creatures. This time there were few entries and the prizes were given somewhat cursorily. I can't even remember who won. But I do know who should have won. Without deliberation, I would have given the blue ribbon to Rod Brooks' six-legged insect robot.

Brooks runs the robot lab at MIT. He says that rather than trying to bring as much life into A-Life as possible, he's trying to bring as much A-Life into life. He wants to flood the world (and beyond) with inexpensive, small, ubiquitous thinking things. He's been making robots that weigh less than 10 pounds. The six-legged walker weighs only 3.6 pounds. It's constructed of model car parts. In three years he hopes to have a 1mm (pencil-tip-size) robot. His ultimate plan is to invade the moon with a fleet of shoe-box-size robots that can be launched from throw-away rockets. It's the ant strategy. Send an army of dispensable, limited agents coordinated on a task, and set them

loose. Some will die, most will work, something will get done. In the time it takes to argue about one big sucker, he can have his invasion built and delivered. The motto: "Fast, Cheap, and Out of Control!"

As an example, he built what he humorously calls "The Collection Machine" — a robot in an office space that collects empty soda cans at night. It's ingenious. It operates according to the *Society of Mind* approach to A-Life robotics. The eyes of the Collection Machine spot a soda can on a desk and guide the robot until it is right in front of the can. The arm of the robot knows that it is in front of a soda can because it "looks" at its wheels and says, "Gee, my wheels aren't turning, I must be in front of a soda can." Then it reaches out to pick the can up. If it is heavier than an empty can, it leaves it on the desk. When it takes a can, it finds its way all the way back to its station to unload it, then randomly wanders again through offices until it spots another can. Not very efficient per trip, but night after night it can amass a great collection of aluminum. During the day it sleeps.

Brooks has another small robot in mind that lives in the corner of your living room or under the sofa and wanders around vacuuming at random whenever you aren't home. You only notice how clean the floor is. A similar, but very tiny, insect-like robot lives in one corner of your TV screen and eats off the dust when the TV isn't on. A student of his built a cheap, bunny-sized robot that watches where you are in a room and calibrates your stereo so it is perfectly adjusted as you move around.

PEE-WEE'S A-LIFE HOUSE

The only presentation to offer criticism of artificial life was a slick video done by Peter Oppenheimer of NYIT. Using computer graphics, he created wonderful life-like animations, including trees that

one can dial genetic traits into. Imagine Pee-Wee Herman's journey into the A-Life Playhouse — big plastic DNA singing songs, daisies with blinking eyeballs, genes with little arms and legs with boots — and you've got the style down. In the same video, Oppenheimer plays the role of Dr. Schizenheimer, who continually raises doubts about this A-Life and genetic engineering, only to have himself cloned.

SIMORGS

Bruce MacLennan is working on the creation of synthetic ethology — the study of synthetic animals, which he calls "simorgs." He kept using the word "game." To create a fitness function, points are scored; creatures move around on a grid that's like a board game. Events proceed in unison by "turns." There are rules.

Games have always been on the leading edge of computers, from chess to pong. It is very probable that artificial life will be a compelling (if not addictive) set of computer games played intimately and expertly by pre-pubescent kids. A-Life will be treated as a toy. It will enter our lives through the young, which will ensure its future.

THE LAST ROUNDUP

The last panel brought Alan Kay, Mark Pauline, Chris Langton, Rod Brooks, and Norm Packard to the stage to jawbone about "What is the future of A-Life?"
• During the panel Alan Kay posed that the ancient Greek view "that the visual arts imitate the art of creation," has been modified now to "the computer arts imitate creation itself."
• Langton said that he is learning that in artificial life it is not the *life* that is artificial, only the materials that make it up. It is real life in an artificial medium. He is one of many who sees humans and their machines as part of the natural evolution of life.

- Norm Packard made the observation that in A-Life preserving harmony is more important than preserving species.
- Brooks once again called for an infiltration of robots. He's been working on seeing how "dumb" you can make a robot and still have it do useful work. He gave the example of smart doors. For only about $10 extra you could put a chip brain in a door so that it would know you were about to go out, or it could hear from another smart door that you're coming, or it could notify the lights that you left on, etc. If you had a building full of these smart doors talking to each other, they could help control the climate, as well as help traffic flow. Extend that to all kinds of other apparatus we now think of as inert, and we would have a colony of semi-sentient entities serving us, and learning how to serve us better.

He predicted a future in which we'll have A-Life creatures living with us in mutual dependence — A-Life symbiosis. They will be small, ubiquitous, hidden, and taken for granted. Like insects, they will outnumber us.

Rather than a future of R2D2s serving us beers, Brooks foresees an ecology of unnamed things — just out of sight, engineered with a social insect approach to problems. Many hands make light work.

A-LIFE MYSTERY

BRAIN WAVES, a supercomputer model for studying the brain, has unexpectedly produced — on its own — electrical waves like those actually found in the brain itself. The model, developed by IBM scientist Roger Traub and Columbia University researchers Richard Miles and Robert K.S. Wong, was designed to imitate 10,000 cells in the brain's hippocampus, where many epileptic episodes originate. The most startling aspect of these waves is that no one understands precisely how they are generated either by the supercomputer model or by the brain. However, their existence does provide the scientists with potent evidence that their brain model is accurate.

from *Artificial Life Digest*, April 17, 1990

ARTIFICIAL HUMANS, BIOLOGICAL MACHINES

- Mark Pauline: "Machines have something to say to us. When I start designing an SRL show, I ask myself 'What do these machines want to do?' You know, I see this old backhoe that some redneck is running every day, maybe digging ditches out in the sun for the phone company. That backhoe is bored. It's ailing and dirty. We're coming along and asking it what it wants to do. Maybe it wants to be in our show. We go around and rescue machines that have been abandoned, or even dismembered. So we have to ask ourselves, what do these machines really want to do? What do they want to wear? So we think about color coordination, and lighting. Our shows aren't for humans. They're for machines. We don't ask how the machines are going to entertain us. We ask how we can entertain them. That's what our shows are, entertainment for machines."

Langton: "Yeah, when machines are super-intelligent and super-efficient, what is the niche of humans? Do we want machines, or do they want us?"

Pauline responded, "Humans will accumulate artificial abilities, while machines accumulate biological intelligence. This will make the confrontation even less decisive and less morally clear."

- Chris Langton closes. "Okay, everybody, thank you for coming. It was wonderful. Mark, how about one last time for the future of A-Life?"

The blue light goes on. Mark Pauline goes over to his sonic canon. *Booooooooooooooooooooooom!* •

Holy Fractal Compression

Allan Lundell

The holy grail in the video world is digital video. Once video is in the digital domain (that is, in computer memory), images can be seamlessly edited and manipulated. Finally they can be dumped out onto any video standard or format with no loss of image quality.

Digital video has always been desirable but impractical because of the tremendous space requirements for storing video images digitally. A single video frame (and there are 30 frames per second in standard video) can typically take as much as 500k of space. To get around this space problem, many researchers have been developing image compression techniques, means of reducing the space storage requirements of each image.

The most promising technique so far is called "fractal compression." Based on fractal mathematics, the geometry of nature, a team of mathematicians from Georgia Tech literally stumbled upon a way of compressing a video image at least 500 to 1! Curiously enough, the more complicated the image the better the compression ratio. The Georgia Tech team have formed a company called Iterated Systems, and can compress up to 40 seconds of video onto a single 1.2 mb floppy diskette. They use a Sun workstation to compress each image, taking about 1.5 sec for each frame. Decompression is in real time, 30 frames per second, allowing easy use and transport of truly digital video for the first time. •

The Cyberpunk Computer

Lee Felsenstein

The "Cyberpunk" overly-personal computer design is both a computer and a metaphor. The equations read as follows:

PHYSICAL:
Not very powerful

METAPHORICAL:
Requires imagination and cunning for proper use.

MEDIUM-DENSITY (720 x 256) MONOCHROME GRAPHIC DISPLAY:
Invites a "high-suggestivity" approach to symbol presentation. An image language waits to be developed, perhaps similar to Kanji (oriental ideograms) based upon Western metaphors.

NO CABINET; THE CYBERPUNK IS MADE UP OF A SERIES OF CIRCUIT BOARDS THAT PIGGYBACK THROUGH STACKING CONNECTORS:
Group acquisition. Pieces exchangeable as desired. Procured in pieces by people with low disposable income. Community resource. Scroungers always welcome.

PERSONAL/PORTABLE "BAT" CONFIGURATION (HANGS FROM THE BELT). USES COMMONLY AVAILABLE MONOCHROME VIDEO DISPLAYS AND LCD PANELS:
Assumes common availability of video displays and laptop computers for cannibalization. Application of post-capitalist "junkyard world" concept.

NOT NECESSARILY COMPATIBLE WITH ANYTHING:
For use by people who consider themselves outside the "mainstream" and who don't particularly want in.

OPEN ARCHITECTURE:
Rewards self-sufficiency in a context of mutual self-reliance.

The concept of the Cyberpunk design is natural enough to anyone who went through the early days of personal computer development. "Computer Power to the People" was our slogan back then — never mind that the people weren't clamoring for it. We knew that Americans could handle the most complex gizmos provided that they *believed* that the gizmos are actually simple and that it's only a bunch of self-serving elitists trying to convince them otherwise. Ten thousand of us sent in $2 for the plans to the "TV Typewriter" when a how-to-build-it article appeared in *Radio Electronics* in 1973. The editors considered twenty letters a large response to such an article. Something was moving! Even IBM came around to our "open architecture" way of sharing information. They had to. The closed architecture personal computer they first fielded was a failure.

Somewhere along the line, though, the suits got hold of it and rebuilt it in their own image. Software companies "shook out" and restructured themselves along the lines of Soviet state industries — vast hives of seeming activity with miserable kluges appearing as products, accompanied by overblown propaganda that only the truly naive could believe.

What I'm now proposing is that the true believers of personal computing pick up the thread — after the parade has gone by — and resume development in the post-IBM, post-Apple universe. Those companies have levitated to the higher spheres of cost and usership, leaving us mere mortals behind. At least we can learn from their mistakes.

There's room for a simple, elegant design with about a megabyte of memory, using components found in the litter of the junkyard that we're inheriting. It will have bit-mapped video good for LCD or CRT display, making use of old monochrome monitors and abandoned laptops. It will be modular so that people can create many different variations to their whim.

It will invite the creation of elegant, expandable operating systems with an object oriented approach to language and control structures. It will accommodate the most advanced communications peripherals (LAN controllers, radio modems, IR links, store-and-forward communications) reduced to their essentials. It will be usable in a personal-portable environment as well as gussied up sitting on a desk.

It will develop the reputation of being an attractant for unqualified kids with antisocial attitudes. It will be seen as an impractical, underpowered design that can be made to do a few nice tricks, but is definitely "unprofessional" and thoroughly irrelevant to the big-bucks world.

That's fine, big-bucks. Just keep making the junk and throwing it away. We'll catch you later.

In the meantime, it's time to do some REAL marketing research. If you would be willing to send $15 for the plans (inflation, y'know) when such plans are ready, write to me at the following address to indicate your willingness - SEND NO MONEY, at least until we tell you to. An adequate response will start the project running.

Address: Dept. C, Golemics, Inc. 2831 7th Street, Berkeley CA 94710. •

Japanese Toys

*No collection of
alien artifacts would
be complete without
some Japanese toys.
The best are puzzling,
gorgeous and demand
to be played with.
Anyone who can
resist my Blood-
Sucking Tool or
Deathpion has to be
terminally serious.
Anyone who can
transform my VF-1A
Valkyrie from
Battroid to Fighter
without instructions
has been practicing
at home!*

ILSA VANHOOK

Zoids: Plastic, snap-together kits that walk, crawl, scuttle, or float. They're fantastic mechanical fighting machines patterned after animals: dinosaurs, insects, pachyderms, fish. Sort of a Dino-Riders meets SRL esthetic. The smallest cost less than $10 and go together in a few minutes. The largest are $50 and up.

They'll take a week of evenings to put together. The assembly instructions are in Japanese, but include excellent diagrams. Pay special attention to the way moving parts fit together!

Picks:

E24-01 Deathpion, about $50. A battery-powered scorpion with a tail that stabs forward and claws that grab for things as it crawls.
EHI-2 Black Rhimos, $25. A wind-up rhinoceros whose horn spins (it's a drill) while it walks.
RMZ-30 Double Sworder, $12. A wind-up beetle whose pincers open and close.
Gundam: Huge robot-like fighting vehicle/suits, they first appeared in the animated TV series *Mobile Suit Gundam* in 1979.

There are dozens of conventional plastic models available, but they aren't much fun to play with. For my money, the High Complete Models (HCM) are a lot more amusing. HCM are mostly plastic on the outside with metal internals and joints, giving them a nice heavy feel. The figures themselves are already assembled, but one gets to do some token work, like snapping together a gun or a rocket pack.

In the last few years, Super Deformed Gundam and SD BB. Gundam have become enormously popular in Japan. SD Gundam are small, caricature-like Gundam models. They snap together in a few minutes without glue. Most have some neat trick they can do: the Z'gok's eye moves when you move its backpack, and it has claws that can open and close. SD BB Gundam aren't quite as nice-looking, but shoot little plastic pellets from spring-loaded weapons.

Picks:

Heavy Metal L-Gaim Mk-II, HCM from Bandai,$25-$40. A posable, spindly figure with many protrusions, joints and wings, it carries an exotic gun longer than it is tall. Wires from the gun plug into sockets in its pelvis. Very bizarre, highly recommended.
Jagd Doga SD Gundam, under $10.
Transforming Toys: What most people think of when you say "Japanese toys": robots whose limbs twist, pull, pivot and realign to become airplanes, guns, tape cassettes, other robots.

The VF-1A Valkyrie, from the animated *Macross* stories, is a classic example. Out of the box, it's a robot-like fighting machine (called a "battroid"), but it can be transformed into a space fighter plane or a hybrid vehicle called a "gerwalk."

The U.S. has domestic "Transformers." They're durable but boring compared to the best Japanese imports. One can imagine Transformers surviving repeated crashes, accidental stompings and other kid-type abuse. The Valkyrie and its kin make up for their fragility with better looks and more convincing transformations.

Picks:

VF-1A Valkyrie, various sizes and prices from $15 to $200. Great fun. Your friends will wonder why it says "U.N.Spacy" on the side.

Armor Rocks, about $10. Functional combination type padlocks that transform into robots. Several types available.

Miscellany: One can find great things in toy stores occasionally; the Blood-Sucking Tool mentioned above is a chubby plastic syringe that fills with a blood-like liquid when the plunger is pulled out. The only words in English on the box are "Vampires" and "Made in Japan."

The bulk of Ultraman and Godzilla toys aren't too interesting; exceptions include phosphorescent and inflatable toys, and Ultraman rubber stamps complete with phrases like "gambatte!" and "suki desu."

Sources:
Finding these toys at your average mall toy store is possible, but not too likely. Since there is no US advertising, they don't sell very well. There are stores that specialize in these kinds of things, though. In the San Francisco bay area:

Kimono My House
1424 62nd St.
Emeryville, CA 94608
(415) 654-4627
(fullest range and they do mail order!)

Science Fiction in San Francisco (SF2)
616 Clement St.
San Francisco, CA 94118
(415) 751-7380

Mikado
Kintetsu Building
Japan Center, San Francisco

Pinocchio
Peace Plaza Mall
Japan Center, San Francisco
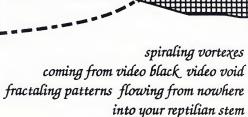
Ironhorse
1705 Solano Ave.
Berkeley, CA 94707,
(415) 528-3302. •

VISUAL GLOSSOLALIA: the Allure of Desktop Video

by Britt Welin & Ken Adams

exploring boundaries   technoanimistic
pioneering sensibilities   sense abilities
what will the computer reveal to us   create with us

"you must let the machine into your heart."
-Rudy Rucker

spiraling vortexes
coming from video black video void
fractaling patterns flowing from nowhere
into your reptilian stem
mesmerizing eroticizing

ROSE * X

work love together   pool equipment
shared visions shared expenses
gumbo ya ya technique
visual synergizing
fluid dynamics

real time virtual reality

first-wave

alchemically wedded computer/video
electric guitar of the nineties
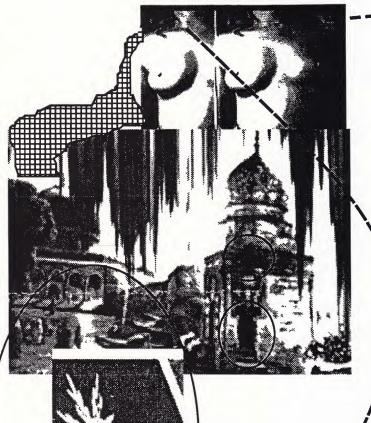
for now   AMIGA COMPUTERS
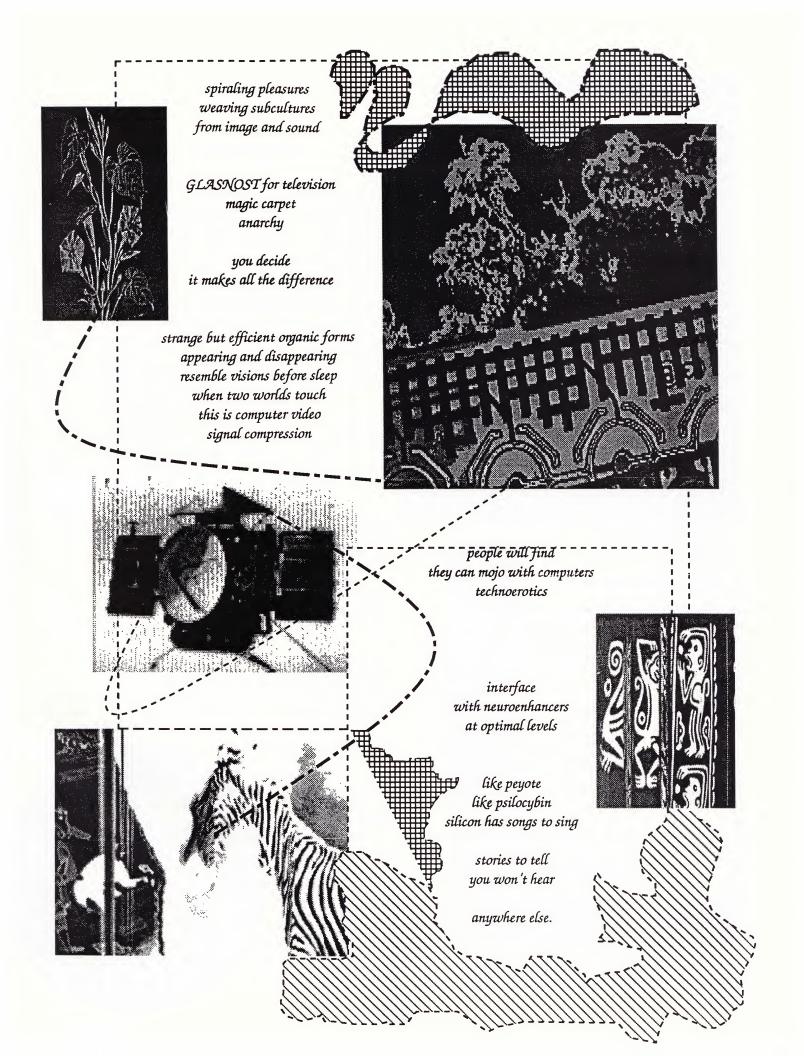
are ONLY serious option for voyagers
without trustfunds or professional status

imagine
communications
with other cultures/species
with visible language
visual glossolalia

poets will speak magic thru multichannel boxes
alpha waves flooding video screens

Knowledge is social, multiplex
collective hallucination
culture is context

spiraling pleasures
weaving subcultures
from image and sound

GLASNOST for television
magic carpet
anarchy

you decide
it makes all the difference

strange but efficient organic forms
appearing and disappearing
resemble visions before sleep
when two worlds touch
this is computer video
signal compression

people will find
they can mojo with computers
technoerotics

interface
with neuroenhancers
at optimal levels

like peyote
like psilocybin
silicon has songs to sing

stories to tell
you won't hear

anywhere else.

The Pleasure Dome Project

Nick Herbert

The leadership of the Soviet Union and the United States are beginning to come to their senses. Our leaders now realize, thanks to massive debts, that unrestrained preparation for war can economically disable a nation just as effectively as actual combat. Economically speaking, military spending has the same effect as building a billion pianos and throwing them into the sea. Military spending consumes vast quantities of a nation's wealth, talent, and natural resources to produce complex machines that at best do nothing, at worst cause enormous amounts of pain, death, and destruction of resources. The astonishing economic growth of Japan and West Germany can be attributed largely to the fact that post-war treaties restricted these countries to non-military production: their science and industry had to produce things that people could actually use to enhance their lives.

In this future I foresee, as swords are pounded into plowshares, many weapons labs will be converted to more beneficent ends. I propose that a portion of the scientific resources freed up by this conversion be channeled into a government-sponsored quest for one of the human rights articulated by our visionary Founding Fathers: the right to "the pursuit of happiness." These new labs — rededicated as "pleasure domes" — will scientifically search out and develop new forms of joy and arrange for their widest possible dissemination. The pleasure-dome project is partly inspired by Ilone Staller, a former porn star elected by popular acclaim to the Italian Senate, who calls for the replacement of atomic weapons with "anatomic weapons," the renunciation of warfare in favor of face-to-face sensual contact between

O SCIENCE GIVE ME TWENTY FEET

TWENTY GRANDMA MEAT BALL EYES

TAKE ME APART IN THE ROBOT ROOM

JUST GIVE ME ONE THING EXTRAORDINARY.

—PETER ORLOVSKY

peoples of the world. To those who complain that a scientific study of pleasure is frivolous in light of more pressing social needs, I point out that the word "defense lab" is only a thin cover for the scientific search for more ingenious ways of delivering pain and death. Let's turn that ingenuity around 180°.

As a prototype of the pleasure-dome principle I propose converting the Lawrence Livermore Laboratory in Northern California — currently the nation's largest nuclear weapons research lab — into the D.H. Lawrence Livingmore Laboratory— the world's largest scientific center dedicated solely to the pursuit of happiness. The D. H. Lawrence Lab will supplement ongoing amateur and industrial efforts to improve the quality of life on Earth with large-scale scientific inquiry into efficient ways of augmenting already recognized modes of human happiness plus the search for "extended play"— new kinds of bliss currently unimagined by human body/minds.

In the laboratory of the future each sense will find its specialists who will scrutinize their favorite mode of perception with the usual scientific tools wielded from an unusual perspective — the senses envisioned as conduits of bliss. The sensual scientist will address not only the classic five senses but dozens more described, for instance, by science philosopher Guy Murchie, who distinguishes at least 32 senses, including gravity, temperature, pain, and sense of humor. (See Murchie's "The Seven Secrets of Life" for a more complete sensory inventory.) The new sensory science should produce a human experience illumined through new doors of perception (sensitivity to electric fields, sonar, infrared, for example) as well as simplification and subtle modulation of the senses we already have. Imagine a "smelling aide" analogous to a "hearing aide" which lets you share a dog's expanded olfactory range. Who can say what new disclosures about our daily lives might emerge from research in the Livingmore pleasure domes? My late friend,

physicist Heinz Pagels, considered it scientifically shameful that generations of women missed a life fact recently discovered in a Stanford sleep lab — that men inevitably get hard-ons when they dream.

In the D. H. Lawrence domes, work will certainly proceed to develop new sensory and motor prostheses including the power of "telesensation": taking on (via radio or laser links) the body image of a robot spatially separated from your physical body. Intellectually you may know that you are suspended in a Lilly Tank in Livermore, but experientially you are sounding the Ramapo Deep with sonar senses and a dozen tentacles, alert for the scent of predatory sperm whale. Or you may prefer to fly, flapping and soaring on light wings. Now that the body's load can be shed, mankind lifts free of gravity in a second Kitty Hawk. Disguised as bear, hawk, mole, mouse, salmon, men and women reenter the animal kingdom, living the lives of numerous species, sharing animal emotions, celebrations, and migrations, not as outsiders but inside the very skin of the beast. Closing the wound symbolized by Adam's Fall, mankind will scatter itself in a thousand proxies throughout the Great Chain of Being.

Sensory virtuosos will flock to the city of Livermore. With so much attention being paid to the senses, Livermore will attract thousands of cooks, artists, musicians, masseuses, and other sensory pros of the highest caliber. Not wanting to be left out, other municipalities — first in California, then across the nation — will demand pleasure domes of their own.

Along with sensory physiology, the sciences of chemistry and physics will be harnessed for the pursuit of happiness. Life-positive chemists will be encouraged to create new perfumes, sexual attractants, sense-specific chemical amplifiers, mood enhancers, empathogens, aphrodisiacs, good old psychedelics, as well as novel vitamins with presently inconceivable uses. Specialists in goos, gums, jellies, and other exotic polymers in conjunction with tactile technicians and mechanical engineers will devise a bewildering variety of space-age sex toys, invigorating a sensory science now stuck in the Stone Age.

The so-called "new physics" of quantum theory and relativity will be augmented by a "really new physics" that includes consciousness (human and otherwise) as one of its major components. Research into the "subtle energies" developed in the martial and marital arts coupled with investigation of the remarkably intimate physics of connectedness recently unveiled by Bell's theorem will lead to a new "quantum tantra" which might be expected to revolutionize human relations and open up entirely new areas of endeavor for the human spirit.

Although much of the work at Livingmore Lab will be experimental in nature, there will be room for theoreticians of all stripes. Hedonic philosophers, for example, will learn to map the heights of human ecstasy as well as sound the depths of depression that inevitably accompany a life devoted to the pursuit of happiness. The sensitivity to nuance, the tough discipline required for the hedonic adventure, and the wisdom we will all need to navigate the new realms that the pleasure domes open up will require us to devise new forms of education truly devoted to the pursuit of happiness, rather than "just getting by."

Whether any of this could really happen is up to you. It's your tax money that pays for the death labs. If you don't like it, take a stand. Stand up for life. Sit down for death. Stand up and demand your twenty Grandma meat ball eyes.

A Modest Proposal

Robert Anton Wilson

S. MacLaine
Research Institute
Subject # 001313

Animal Rights activists have brought to the shocked attention of all humane people the unspeakable sufferings endured by experimental animals in medical-scientific research, and no decent person can read the literature of this subject without profound dismay and distress. Indeed, the illustrated publications of the anti-vivisectionists, in vivid crimson technicolor, often produce more than mere emotional discomfort: They sometimes trigger acute nausea or actual vomiting, just like anti-abortion leaflets.

The majority of people, of course, have not yet been convinced by this literature. Some perverse streak of prejudice in most humans obstinately inclines us to consider the minimization of human pain more important than the minimization of animal pain, and when we think that cancer or AIDS might strike us, or our loved ones, we are selfishly willing to sacrifice any number of rats or hamsters in the search for a cure. We amorally and unethically rationalize that the sacrifice of a few thousand animals might be worthwhile to save millions and millions of human lives, now and in the future.

Fortunately, the Animal Rights movement does not allow itself to become discouraged by this lack of success in persuading the human-chauvinist majority. Like the anti-abortionists, the anti-vivisectionists know in their hearts that they are right, so they do not really need majority assent in the manner of the archaic 18th Century ideology of "democracy" (which nobody takes seriously any more.) Militant anti-vivisectionists simply ignore the law and trash laboratories with the same zest that the more extreme "Right to Lifers" show in trashing medical clinics.

Considering the growing strength of the Animal Rights movement in many quarters, it seems probable that scientific laboratories, just like abortion clinics, will soon be able to operate only under 24-hour-a-day police protection, or with rabid pit bulls wandering the grounds, or in some such state of siege. In the age of the PLO and IRA, the Red Brigades and the CIA, the ethics of nihilism — "If I don't like it, I'll smash it" — have become the norm, as Robin Morgan documented in her recent book, *The Demon Lover: On the Sexuality of Terrorism*.

I admit this Fanoniste mystique provides a great deal of excitement and a needed outlet for the males in the high testosterone (18-to-24-year-old) age group — who, statistically, commit most of the violence in the world, whether they find a "cause" to sanctify their rampages or frankly

set out as outlaws and pirates. This "I am above the law" mystique also supports the TV news shows, which might be at a loss to fill their time if somebody wasn't bashing or slashing or shooting somebody else or blowing up some thing or some place. Nonetheless, this "Live Like Che" attitude, which is a legacy of the worst last years of the 1960s, may not prove the best way to settle all human differences and disputes, and I would like to offer a modest proposal for a way to gratify the Animal Rights people without bringing all scientific-medical research to a grinding halt. My inspiration comes from an Austrian political thinker who astonishingly anticipated the New Age in many aspects. The man to whom I refer was, of course, like all New Agers, a vegetarian, a militant activist, and a believer that a New Humanity was being born in this century. He consulted astrologers before making important decisions. He trusted "intuition" more than "mechanistic science." He loved dogs — although, eccentrically, he would only pet them when he had gloves on. He never allowed cigarette smokers in his house, which counts as a truly astounding New Age foreshadowing when I inform you that he was born 100 years ago and died over 40 years ago.

I refer, of course, to the man who abolished animal experiments in Germany — Adolph Hitler. Now it is true that Mr. Hitler has a tainted and unsavory reputation in some quarters, but you have already seen (from the above) that he truly anticipated many New Age attitudes and deserves to be considered a major prophet of our times, even if he was wrongheaded at times and had some illiberal attitudes. Anybody who has studied his life knows he would have been a devout fan of Ramtha; he imported Tibetan monks to teach yoga to his inner circle; he believed in reincarnation as ardently as Shirley MacLaine; and he, more than anyone else, created the now fashionable philosophy that waiting for reforms through liberal democracy is slow and tedious, so he urged the bold and brave to abrogate law and do what their "blood" and "instinct" tells them is right.
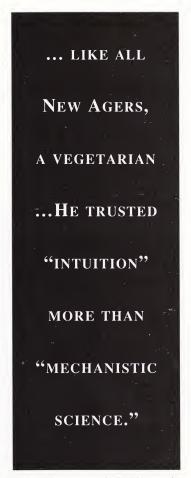
Furthermore, Mr. Hitler's ban on animal experiments did not stop medical research in Germany, which made many advances under his regime.

Athletes should note that his doctors pioneered the use of steroids and methamphetamines to produce a competitive edge. Many useful things were also learned about how much pain, how much cold, how much electric shock, etc., a human could bear before dying; these lessons have proven invaluable to the CIA and its allies in Latin America.

How did medical research continue without the sacrifice of helpless and pathetic animals? Mr. Hitler simply replaced quadrupeds with humans of the sort he considered "social undesirables," and hence research moved along just as speedily as in nations where innocent rodents are used. After all, an "undesirable" human is still more like other humans, medically, than a rat is, so if Mr. Hitler's ideas had been widely copied, medical research might even have accelerated worldwide.

Of course, many people have extreme doubts about Mr. Hitler's notions of which humans are "undesirable." His list included Jews, homosexuals, gypsies, and all people who didn't like his politics much. (At one point he thought of adding modern artists to the list, just as if he had been reading Ayn Rand.) While this seems distasteful to our generation, Mr. Hitler's general principle of using rottten humans instead of decent animals in scientific research may still deserve reconsideration.

My proposal is that we replace rats and other laboratory animals with those humans who are, by general agreement throughout America

... LIKE ALL NEW AGERS, A VEGETARIAN ...HE TRUSTED "INTUITION" MORE THAN "MECHANISTIC SCIENCE."

today, the true undesirables — the cigarette smokers. I hope that this suggestion will not be rejected without serious examination. Cigarette smokers have already lost most of their civil rights in this country, and the majority of citizens approve, especially in California. Do we not believe in majority rule here? In the days of racial segregation, Blacks had to sit in the back of the restaurant, but now cigarette smokers are not only segregated in that manner but often not allowed into certain restaurants at all. We have obviously demoted them to a stage below that of "the Mississippi nigger" in 1950, so there certainly exists a public mood — a potential consensus — that is ready to demote the nicotiniacs even further. Hardly a week goes by without the announcement of a new law to degrade, humiliate, or dehumanize these pariahs. They are the ideal substitutes for the rodents whose sufferings can still move us to pity, since nobody in

America has any pity for a cigarette smoker.

(How far we have already come toward total segregation can only be appreciated by traveling in Europe, which is almost totally desegregated. From Ireland to Italy, and from Hungary to Spain, smokers and non-smokers sit in the same parts of the restaurant, drink at the same bars, dance together and, according to rumor, even have sex together. Degeneracy and libertinism have always characterized European society, which has never had American idealism and puritanism to guide it.)

Since this solution has mass appeal, as I have demonstrated, it is therefore practical. It also creates a "moral alternative" to vandalizing laboratories, and will give the Animal Rights movement a platform that can very likely win the hearts of the majority. When you remember that nicotine is a drug, and cigarette smokers are therefore "drug fiends," this modest proposal will seem not only plausible but virtually inevitable. The next step in our national "war against tobacco" will obviously be to place the nicotine addicts in "re-education camps." After that, their use in medical research will be an easy "final solution" to the cigarette problem.

Nor is there any likelihood that this humane alternative to the plight of laboratory rats will be fought in the courts by the American Civil Liberties Union. Step by step, as cigarette smokers have been progressively segregated and chandalized, the ACLU has clearly indicated a conviciton that these vermin are non-persons and do not possess "human" rights, any more than a fetus does.

I trust that this proposal will be considered seriously by Dear Abby, the gurus of the New Age movement, the "deep ecologists" (who should find it especially appealing), and the majority of all right-thinking people in the United States. •

Designer Beings

DURK PEARSON AND SANDY SHAW IN CONVERSATION WITH JUDE MILHON

OUR LATEST MEETING WITH THE LONGEVITY TWINS ...

DIFFERENTIAL FORCED UNILATERAL BREATHING

SANDY SHAW: This is really far out. By controlling which nostril you breathe through, you can control which hemisphere of the brain is active. This is really wild.

M2: This is the old Ida/Pingala technique . . . the yogic breathing?

DURK PEARSON: Yeah, it's been used in yoga for a long time but this is the first time they've pinned it down scientifically.

SS: There's a cycle of 90 minutes for each nostril. One is clogged and you're breathing through the other for 90 minutes, and then it switches. The right nostril controls the left hemisphere and the left controls the right . The one that you're breathing through activates the one that it controls.

M2: Who did the study?

SS: I've got the paper here... Joshua Backon at the Mount Pleasant Hospital Addiction Studies Foundation in Lynn, Massachusetts. But they say to send the reprint request to Dr. J. Backon, P. O. Box 16336, Jerusalem, Israel. They also found that the blood glucose level increases with left hemisphere activation and decreases with right hemisphere activation. And they're suggesting that it might be possible to help people who have high blood-sugar levels by forcing them to breathe through the left nostril, which would activate the right hemisphere and decrease blood glucose levels.

SS: The way they did this study was by packing the nostril they didn't want the person to breathe through. They just stuffed it with cotton. They called it "Differential Forced Unilateral Nostril Breathing." (General laughter)

M2: I'm now breathing forcibly through my right nostril. OK, I'm ready: where do I find this report?

SS: It's called "Changes in blood glucose levels induced by differential forced unilateral nostril breathing, a technique which affects both brain hemisphericity and autonomic activity", in *Med. Sci. Res.* 1988 Vol. 16, p. 1197-1199.

They also found that when the right hemisphere is activated you have parasympathetic activation and the left hemisphere gives you noradrenergic sympathetic stimulation.

This paper suggests that a number of disorders; lack of libido, hyperthyroidism, unilateral migraines, cardiac symptoms — may be due to partial nasal obstruction.

Gee, I just noticed in this paper that there is a 90-minute rhythm in the basic rest-activity cycles of a whole bunch of things — heart rate, eating, drinking, smoking, perception of apparent motion, daydreaming, oxygen consumption, gastric contractility, vigilance or alertness, EEG alpha activity, eye movements and physical activity. Apparently because of the bouncing back and forth between the two hemispheres. That's wild. It's interesting that LHRH has a natural 90-minute cycle.

M2: LHRH? Luteinizing hormone releasing hormone?

DP: Yeah: it's a natural aphrodisiac. The hypothalamus releases LHRH which stimulates gonadal activity in both males and females.

M2: Any studies correlating LHRH and the nostril in question?

DP: No, but this is one for you amateur scientists . . . ask your friends when they have particularly good versus not-so-good sexual experiences, which was the dominant breathing nostril! (Sandy laughs) Don't tell them what it's about. Just collect the evidence from as many people as possible for a couple of months.

M2: Ah! Well, according to yogic sexual practices, the woman should be lying on her right side to clear her left nostril and the man should lie on his left side to open the right nostril.

DP: Well, well! Interesting!

M2: That sex configuration is just standard tantra drill. I think it's in the Kama Sutra — you can check it.

DP: Yeah, we've got a copy of that around somewhere.

M2: Hemispheric differentials may have to do with hemispheric oxygenation, with perfusion?

DP: Not only perfusion of oxygen — perfusion of carbon dioxide. Higher CO_2 changes the blood pH and opens the blood-brain barrier to compounds that can't normally get through. Inhaling CO_2 facilitates the brain uptake of some substances.

Now, look . . . you can also put peptides into the bloodstream more easily with the help of a little polysorbate-80. Take an insulin solution that contains 1% polysorbate-80 and spray it up your nose. You'll absorb 40% to 60% of that insulin. In smaller peptides like LHRH the percentage is much higher.

M2: Ahah! That means . . .

DP: You can have a lot of interesting peptides going *directly to your brain*. See, there's a rapid uptake from the nose and sinus cavity — those blood vessels lead directly to the brain.
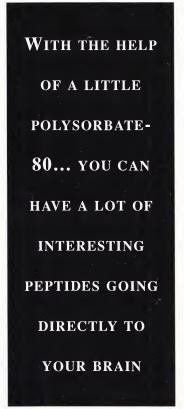
M2: And, apparently, they might be differentially processed by right or left nostril. More investigations for the amateur!

SS: Years ago someone produced a desktop polypeptide-making machine and we thought, "Wow, it won't be long now before there's black market peptides all over the place" — but it hasn't happened.

PHENOBARITAL VS. BHT

M2: I've heard of using phenobarbital to flush poisons out of the body, by inducing the enzymes that break down chemicals in the liver.

DP: I'll tell you a healthier way to do it that doesn't have the addiction

or the respiratory collapse potential of phenobarbs. BHT induces exactly the same enzymes.

In fact, when I had a couple of wisdom teeth pulled recently, something astounding happened. They stuck the needle in my arm with phenoxybarbital, which is an ultra-short-acting hypnotic, and it took much more than anybody else had ever taken to knock me out. And then, get this . . . within 30 seconds, I woke up. Afterwards the dentist said, "You're a reds freak, aren't you?" I never touch barbiturates. He said, "You must use at least half-a-dozen reds a day. I've never seen anybody take so much phenoxybarbital. I've never seen anybody wake up so quickly." I said, "No, I take a couple of grams of BHT a day!"

3 A DAY BEFORE SEX

M2: Oh listen. Can you list all the things that you're taking daily? I'd like to know the levels that each of you are taking.

DP: Ok, well: we take 2 1/2 times the labelled dose of Personal

Radical Shield. We take 10 grams of C in the form of our Dual C. In addition to the taurine that's in the Personal Radical Shield, we take another half dozen grams of taurine. We take Powermaker; Sandy takes about 2 servings a day, I take about three a day before sex.

M2: Three a day before sex !?!

DP: We also take about one serving of the Choline Cooler a Day.

SS: You didn't mention the Rise and Shine.

DP: And in the morning, I start out with either a Rise and Shine or Blast, and a Thermogen tea, depending on how hard and fast I want to go off.

If I have a radio broadcast in the morning, I'll take a Fast Blast, a Thermogen Tea and a Choline Cooler as soon as I get up.

SS: We also take extra beta carotene.

DP: Sandy takes an extra 50,000 units. I figure that the 90,000 or so a day I get in my 2 1/2 times the regular dose of PRS does a pretty good job on me.

SS: What I'm taking doesn't make me even a little yellow.

WAKE UP WITH A BLAST CRYING "YIPPIE"

SS We talked to Jerry Rubin and he said he'd be delighted to have you mention that he uses our designer foods, particularly the Blast and the Thermogen Tea and that he's sellin' 'em.

M2: Okay. Thermogen Tea is ephedrine, right? Is there anything else in it?

DP: We've included citric and malic acid, spices and so forth.

SS: Malic acid is called apple acid — it's responsible for the tart taste in apples. Malic acid has recently been tested in mice that were poisoned with aluminum. Aluminum in the brain causes all kinds of problems — it seems to contributes to Alzheimer's. In mice, the malic acid is very effective in removing aluminum

from the brain — even better than the prescription drug Deferoxamine that's usually used for that purpose.

DP: There appears to be a strong genetic component to Alzheimer's. If you have identical twins living in about the same environment they'll develop Alzheimer's at about the same time. Well, we met a Canadian scientist at the Gerontology Society in Minne-apolis in November, and he had found an exception to that rule. He showed pictures of a pair of identical twins — tested genetically to make sure they were truly identical. One of the women had had Alzheimer's for about 12 years. The other didn't have a trace of Alzheimer's and was being tested every year. They'd lived in the same house all their lives. There is only one interesting difference in their lifestyle. The one that doesn't have Alzheimer's has drunk half a bottle of wine a day for the last 30 years. The other one doesn't touch the stuff. The average half bottle of wine will give you about two grams of malic acid per day which is a physiologically significant amount.

M2: I've seen actuarial reports that people who drink small amounts of alcohol are more healthy — but they didn't specify wine.

DP: Studies that show better health with one to three glasses of beer or wine per day also show very clearly that this does *not* occur if the person drinks distilled liquor.

M2: Right. But there's no malic acid or citric acid in beer.

DP: There is *some* citric and malic acid in beer. There're also some other chelating acids.

IN SEARCH OF THE PERFECT STEROID REPLACEMENT

M2: I noticed in the health food store the other day that there are all kinds of supplements that are purported to be anabolic aids, and I contacted someone recently about ferulic acid as a possible anabolic agent.

DP: I've seen no evidence to support the idea that it is. It's an antioxidant, but I've seen no evidence that it's an anabolic agent. Gamma-oryzanol is also repre-sented as an anabolic agent. I suspect people think it's anabolic because it makes you put on weight. It makes you put on weight because it drastically increases your prolactin production, which puts on fat.

M2: Gamma-oryzanol is the plant form of ferulic acid.

DP: There's a lot of bullshit. Arginine works, ornithine works, L-Dopa works, there are a few prescription drugs that work, but most of the stuff that's being sold in health food stores as anabolic agents is pure bullshit.

SS: There's all kinds of malarkey and even outright fraud in the health food trade. But we still think that having the government decide what's true, and what information you're allowed to hear, is much more dangerous than the snake oil salesmen.

LEGALIZE TRYPTOPHAN!

M2: Some paranoids up here have suggested that the tryptophan poisoning scandal might have been due to deliberate sabotage by someone trying to discredit the alternative health movement. Do you have any theories?

DP: Oh, we've got a lot of data on tryptophan. We got a notice from the British medical regulatory authorities . . .

SS: They sent out a letter to all the doctors in Britain suggesting they should use the prescription tryptophan only.

DP: The stuff that's sold in the health food store may or may not be pharmaceutical grade. There have been no... I repeat... no cases of EMS (a syndrom of muscle pain, fever and elevated eosinophials associated with tryptophan recorded in Britain. Now there're about fourteen million Americans taking tryptophan regularly.

SS: That's according to the Center for Disease Control.

DP: It's big. Some of the people got EMS with doses as low as one-half gram of tryptophan a day. The only way that much tryptophan can cause problems is if it has been contaminated.

M2: And the Eosinophilia sounds like an allergic response. It might be as simple as rat shit.

DP: Either that or some sort of virus. There's a West Coast doctor who says that the symptoms resemble non-A-non-B hepatitis.

SS: This may end up being like the Spanish incident, where a lot of people got EMS from what was thought to be contaminated cooking oil. There were never any further outbreaks, even though they never identified what the hell it was.

DP: The point is that they couldn't permanently ban cooking oil in Spain, but the FDA might simply leave tryptophan banned indefinitely.

Then there're going to be some real problems because a lot of the people that are using tryptophan for insomnia, PMS, agitated depression, impulsive behavior — they're going to start using stuff like benzodiazepines and barbiturates, which are a hell of a lot more hazardous, and have a high addiction potential. People will have to start smuggling tryptophan of unknown quality up from Mexico.

DIY RU-486

SS: That brings up the ban on RU-486. This drug not only induces abortion...it acts against ovarian cancer, cervical cancer, uterine cancer — it's outstandingly effective in that capacity. It's also capable of protecting the brain against hypoxic damage during strokes and heart-attacks.

DP: Given access to some hard-to-get precursors, RU-486 is much easier to synthesize than cocaine and as cheap as BHTA. What that means is that the markup on RU-486, if they keep it illegal, is gonna be much greater than for heroin or cocaine.

SS: It's becoming harder for people to force their views on other people. The technology is now becoming available to everybody to do *to* or *for* themselves whatever they want.

M2: So the only problem is access. You suggested earlier that people who are distributing illegal recreationals will go into distributing other pharmaceuticals.

DP: That's right. If the FDA had blocked the availability of Deprenyl any longer, Deprenyl would have become an underground drug.

M2: Tell us about Deprenyl.

DP: It's a preventive in slowing down aging and it's an aphrodisiac. It's an antioxidant, and it tends to improve people's coordination in athletics as well. Although they won't pass a urine test because it has methedrine and amphetamine metabolites.

SS: If you look at these consensus committees, they all say that it's okay to use genetic engineering for people who inherited some serious or fatal disease. But it definitely and absolutely isn't okay to improve normal human performance in any way. But it isn't going to work. It's not going to work because they won't be *able* to prevent these techniques and drugs from becoming available, eventually, to people who want to use them. •

BEING

IN

By John Perry Barlow

NOTHINGNESS

VIRTUAL REALITY AND THE PIONEERS OF CYBERSPACE

"Cyberspace.
A consensual
hallucination
experienced daily by
billions of legitimate
operators, in every
nation... A graphic
representation of data
abstracted from the
banks of every computer
in the human system.
Unthinkable complexity.
Lines of light ranged in
the nonspace of the
mind, clusters and
constellations of data.
Like city lights,
receding..."

—William Gibson,
Neuromancer

Illustrations by
Mark Landman

© 1990

SUDDENLY I DON'T HAVE A BODY ANY MORE.

All that remains of the aging shambles which usually constitutes my corporeal self is a glowing, golden hand floating before me like Macbeth's dagger. I point my finger and drift down its length to the bookshelf on the office wall.

I try to grab a book but my hand passes through it.

"Make a fist inside the book and you'll have it," says my invisible guide.

I do, and when I move my hand again, the book remains embedded in it. I open my hand and withdraw it. The book remains suspended above the shelf.

I look up. Above me I can see the framework of red girders which supports the walls of the office...above them the blue-blackness of space. The office has no ceiling, but it hardly needs one. There's never any weather here.

I point up and begin my ascent, passing right through one of the overhead beams on my way up. Several hundred feet above the office, I look down. It sits in the middle of a little island in space. I remember the home asteroid of *The Little Prince* with its one volcano, it's one plant.

How very like the future this

place might be: a tiny world just big enough to support the cubicle of one Knowledge Worker. I feel a wave of loneliness and head back down. But I'm going too fast. I plunge right on through the office floor and into the bottomless indigo below. Suddenly I can't remember how to stop and turn around. Do I point behind myself? Do I have to turn around before I can point? I flip into brain fugue.

"Just relax," says my guide in her cool clinical voice. "Point straight up and open your hand when you get where you want to be."

Sure. But how can you get where you want to be when you're coming from nowhere at all?

And I don't seem to have a location exactly. In this pulsating new landscape, I've been reduced to a point of view. The whole subject of "me" yawns into a chasm of interesting questions. It's a Disneyland for epist-omologists. "If a virtual tree falls in the computer-generated forest...?" Or "How many cyber-nauts can dance on the head of a shaded solid?" Gregory Bateson would have loved this. Wittgen-stein, phone home...

At least I know where I left my

body. It's in a room called Cyberia in a building called Autodesk in a town called Sausalito, California. Planet Earth. Milky Way. So on and so forth. My body is cradled in its usual cozy node of space-time coördinates.

But I... or "I"... am in cyberspace, a universe churned up from computer code by a Compaq 386 and a pair of Matrox graphics boards, then fed into my rods and cones by VPL Eyephones, a set of goggles through whose twin, parallax-corrected video screens I see this new world. When I move my head, the motion is tracked by a Polhemus magnetic sensor and the imaging engine of cyberspace is instructed to alter what I see accordingly. Thus, having made a controlled ascent back up through the floor of the "office," I turn to the left and I see a red chair with a desk behind it. I turn to the right and I see a door leading out onto the floating platform.

The configuration and position of my right hand is fed into the system by a VPL DataGlove, also with a Polhemus attached to it. The relationship between my hand and the eyephones is precisely measured by the two trackers so that my hand appears where I would expect it to. When I point or make a fist, the fiber optics sewn into the DataGlove convert kinesthetics into electronics. For a decisecond or so, my hand disappears and then reappears, glowing and toon-like, in the appropriate shape.

Despite the current confines of my little office-island, I know that I have become a traveller in a realm that will be ultimately bounded only by the human imagination, a world without any of the usual limits of geography, growth, carrying capacity, density or ownership. In this magic theater, there's no gravity, no Second Law of Thermodynamics, indeed, no laws at all beyond those imposed by computer processing speed... and given the accelerating capacity of that constraint, this universe will probably expand faster than the one I'm used to.

Welcome to Virtual Reality. We've leapt through the looking glass. Now what? Go ask Alice.

"I think this is the biggest thing since we landed on the Moon," says Jaron Lanier, the dread-locked CEO of VPL Research. (Who was 9 years old at that time.) I don't choke on that one — indeed, I'd press the claim further. Columbus was probably the last person to behold so much usable and unclaimed real estate (or unreal estate) as these cybernauts have discovered.

At Autodesk, the Sausalito-based publisher of AutoCAD drafting software, they spent the summer of '89 in product development heaven, talking telephone, automobile, airplane, computer. They invoked Edison, Bell, Ford, and Jobs. And there was that loincloth-and-machete sense of enterprise that one might have experienced in the Wright Brothers' Akron Bicycle Shop or Paul Jobs' garage in Mountain View... or the countless less-chronicled shots at perpetual motion or free energy.

Neil Armstrong's small step ran about 70 Billion Real Dollars, but when John Walker, the Hacker King of Autodesk, committed his company to creating the first commercially-available "world in a can," he figured that the prototype "gizmo" could be built for about $25,000.

VPL, the other trading post on VR frontier, isn't much fatter, although internal synergy seems to magnify output. Since their incorporation in 1985, they've had two Scientific American covers and produced the DataGlove, DataSuit, the PowerGlove, Swivel 3-D and VPL EyePhones, the only commercially available head-mounted display. They've been in a couple of big lawsuits (one, just concluded to their satisfaction, with Stanford University), and create, at a distance, the mirage of a fair-sized company going at it pretty hard.

But up close, one can get on a first-name basis with every VPL employee in the course of an afternoon. They have yet to outgrow the third floor of their slightly tacky building at the Redwood City yacht harbor.
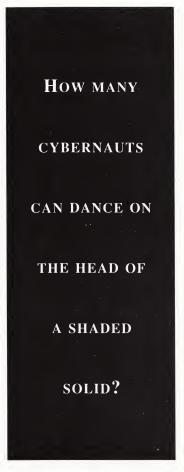
While Apple's research gazillions yield such dubious fruit as multimedia and the AppleFax Modem, while IBM replicates methods for chaining bureaucrats to its mainframes, it begins to appear that the Next Big Thing will begin its commercial evolution as humbly as the personal computer.

As usual, the Big Guys have neither the means nor the desire to engage in such open-ended creation as settling the virtual universe will require. Like the Union Pacific Railroad awaiting the fact of empire, they prefer to let the rag-tag pioneers die all over the frontier before they come out to claim it.

When the Altairs and Osbornes of Virtual Reality have made their fatal errors are headed for Chapter 11, IBM probably will issue forth the SolutionStation VR Network or some such and accelerate natural selection in the field.

But as I write this, VPL and Autodesk still have it to themselves. Actually, they are not the first to make virtual landfall. They are only the first at financial risk. Unlike the first automobiles or telephones their commercial fledglings had the advantage of long incubation by government and Academia.

Virtual Reality, as a concept, found first form at the University of Utah over twenty years ago in the fecund cranium of Ivan E. Sutherland, the godfather of computer graphics and the originator of about every Big Computer Idea not originated by Alan Kay or Doug Englebart. In 1968, he produced the first head-mounted display. This

HOW MANY CYBERNAUTS CAN DANCE ON THE HEAD OF A SHADED SOLID?

was the critical element in VR hardware, but it was so heavy that it had to be suspended from the ceiling... at some peril to its wearer. Damocles was mentioned.

Besides, once you got it on, there wasn't much to see in there. There wasn't a computer in existence which could churn out enough polygons per second to simulate a reality much more full-bodied than a game of Pong.

So Virtual Reality passed a generation waiting for the equipment to arrive. In 1985 the Japanese finally (and unintentionally) provided us with the right video displays when NASA's Mike McGreevy happened to notice that the Citizen Watch Co. LCD displays in a Radio Shack mini-TV were small enough to fit two in a head-mounted.

I hardly need to detail what happened to CPU horsepower during that period. By 1985, graphics engines of appropriate juice were almost within financial

range of entities not involved in the defense of our nation.

Also by this time, NASA had made a strong commitment to VR research, though mostly in the service of "telepresence," the ability to project one's judgement and actions into a robot located some real place you'd rather not be, like space. They were less persuaded by the attractions of unreal places.

The Air Force was also conducting research at Wright-Patterson under the direction of Tom Furness, but most of this was directed at the usual dismal purpose, simplifying the annihilation of non-virtual humans. Heads up displays and looks that kill were their speciality.

For all this expenditure of tax dollars, Virtual Reality still lacked two critical elements: a sense of whimsy and a fluid, three-dimensional method for "grabbing" and manipulating the furniture of cyberspace. VPL was on the case.

VPL's Tom Zimmerman had always wanted the ability to actually *play* air guitar. It was the sort of desire his "boss," Jaron Lanier, could understand. Jaron had only gotten into computers after concluding that musical composition was not a reliable day job. And his ownership of more than 300 musical instruments might indicate, if nothing else, a probing dissatisfaction with the limits of each one.

Over a two year period, Zimmerman and Young Harvill (also of VPL) created the DataGlove, a hand with which to strum those invisible strings. While they were creating this hardware interface (though the Spandex feel of the DataGlove makes "leisureware interface" seem like a more appropriate term), Jaron and Chuck Blanchard were writing Body Electric, the software necessary to map the actual movements of the DataGlove and eyephones onto the
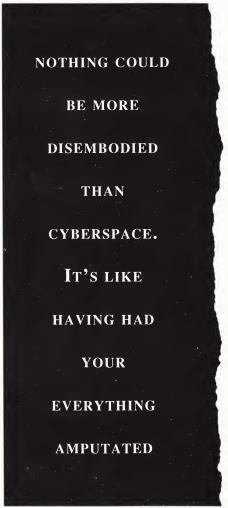
virtual landscape.

The commercial colonization of cyberspace was beginning. VPL's strategy was to build the most powerful simulations current technology would allow, without regard to hardware cost, selling the spin-offs at increasingly affordable prices. One such item, the Power-Glove, is a Nintendo game controller based on the DataGlove which VPL has licensed to Mattel. (Available this Christmas at a store near you for $85.00.)

Another VPL spin-off product is *Swivel 3-D*, odds on the best 3-D modeler for the Macintosh. Young Harvill wrote it as a tool to create an artificial reality quickly and easily on the Mac before integrating it into Body Electric and sending it over the twin Silicon Graphics CPUs which blow it up to full size.

In September of 1988, John Walker wrote an internal Autodesk white paper called *Through the Looking Glass: Beyond "User Interfaces."* In it he proposed an "Autodesk Cyberpunk Initiative" to produce within 16 months a doorway into cyberspace... available to anyone with $15,000 and a 386 computer. The project's motto: "Reality Isn't Enough Any More." (I wondered if they considered: "I'd rather have a computer in front of me than a frontal lobotomy...")

Since NASA's Virtual Realities were running in the millions and VPL's in the middle hundreds of thousands, Walker envisioned a significant discount over previous models, but he knew that his customers, if any, would be more bargain-conscious than, say, the U.S. Air Force.

Autodesk's Cyberia Project was running hard by Christmas, 1988, staffed by William and Meredith Bricken, Eric Gullichsen, Pat Gelband, Eric Lyons, Gary Wells, Randy Walser, and John Lynch. When I arrived on the scene in May, they had been keeping hacker's hours for a long time.

NOTHING COULD BE MORE DISEMBODIED THAN CYBERSPACE. IT'S LIKE HAVING HAD YOUR EVERYTHING AMPUTATED

And they were ready to make a product. They'd made a promo video starring Timothy Leary. Gullichsen had even registered William Gibson's term "cyberspace" as an Autodesk trademark, prompting an irate Gibson to apply for trademark registration of the term "Eric Gullichsen." By June, they had an implementation which, though clearly the Kitty Hawk version of the technology, endowed people with an instantaneous vision of the Concorde level.

Meanwhile, back in the real world, things were getting complicated. While everyone who went to Autodesk's Cyberia agreed that Virtual Reality was *something*, there was less agreement as to *what*.

Part of the problem was the scale of possibilities it invoked. They seemed to be endless and yet none of them was anywhere near ready to return an investment. But when something has endless possibilities, each of them is liable to dilute down to a point where people start to say things like, "Sure, but what's it really *good* for." At which point the devout cybernut might lapse into random syllables, his tongue heavy with all that golden potential.

Virtual Reality induces a perception of huge potency underlying featureless ambiguity. There is a natural tendency to fill this gap between power and definition with ideology. And the presence of such unclaimed vastness seems to elicit territorial impulses from psychic regions too old to recognize the true infinity of this new frontier. Disputes appeared like toadstools in the rich new soil of cyberspace.

Thus, by mid-November, the Autodesk half of the Next Big Thing was down to one full-time hacker: Randy Walser. The Brickens had headed to Seattle to join Tom Furness in a (non-lethal) VR research program at the University of Washington. Eric Gullichsen and Pat Gelband had formed their own VR company, Sense 8. (Get it?)

Within, VPL's soulful band remained as tightly bonded as a Hell's Angels chapter. Without, they found themselves increasingly tangled in legal hassles. They were in court with AGE (a group of New York toy developers who are not just in it for their health), trying to protect their rights to the PowerGlove. They'd just settled a suit with Stanford University. In general, they were having experiences which made me question the axiom that you can't cheat an honest man.

Still, everyone realized that a baby this size would be bound to occasion some labor pains. As the general media began to pick up on Virtual Reality, its midwives were preparing themselves for interesting times. It would be worth it. But *why?*

To the people who will actually make the future, such a question is beside the point. They will develop cyberspace because, like Mallory's mountain, it's there. Sort of.

There are some practical reasons for the settlement of cyberspace. They aren't as much fun to think about as the impractical ones, but they exist. First among them is that this is the next logical step in the quest to eliminate the interface... the mind-machine information barrier.

Over the last twenty years, our relations with these magic boxes have become intimate at a rate matched only by the accelerating speed of their processors. From the brutal austerity of batch-processed punch-cards to the snuggly Macintosh, the interface has become far less cryptic and far more interactive.

There have remained some apparently unbreachable barriers between us and the CPU. One of them was the keyboard, which even with the graphical interface and the accompanying infestation of mice, remained the principal thoroughfare from human perception to RAM. The thin alphanumeric stream which drips from our fingertips and into the computer is a pale reflection of the thoughts which produce it, arriving before the CPU at a pace absurdly mis-matched to its chewing/spitting capacities.

Then there is the screen itself. While a vast improvement on the flickering LED's of the Altair or even the amber text of DOS, the

metaphorical desktop remains flat as paper. There is none of the depth or actual spatiality of experience.

After we get past what few documents we can keep on the screen at one time, we are back to the alphabetized hierarchy. We can't pile it, as most of us tend to do in real life. We have to file it. And this is not the way the mind stores information. One doesn't remember the names of his friends alphabetically. When looking for a phrase in a book, you are more likely to look for its spatial position on the page than it's intellectual position in context.

The actual operation of human memory works on a model more like the one Saint Thomas Aquinas used. Aquinas, who carried around in his head almost all the established knowledge of his simpler world, is said to have imagined a mind-castle with many different rooms in which varying kinds of ideas dwelled. The floor plan increased with his knowledge.

Nicholas Negroponte recreated a modest version of Aquinas' castle in the 70's. He came up with a virtual office, represented in cartoon form on the screen. One could mouse around to the "piles" of "paper" stacked on the "desk" or "filing cabinet," leafing through them not by the first letter of their subject name but by their archaeological layer of deposition.

The problem was the screen. Negroponte created a flat picture of an office rather than something more like the real thing because that was all one could display on a screen. In two dimensions, the image of desktop seemed a lot more natural than the image of the desk. Thence the Macintosh.

I used to think that the only way around these narrow I/O apertures lay in such heroic solutions as brain implants. I think I was about 14 when it occurred to me that this was the answer. Brain surgery seemed to be a minor inconvenience if it left one with the ability to remember *everything*.

IT'S A DISNEYLAND FOR EPISTEMOLOGISTS
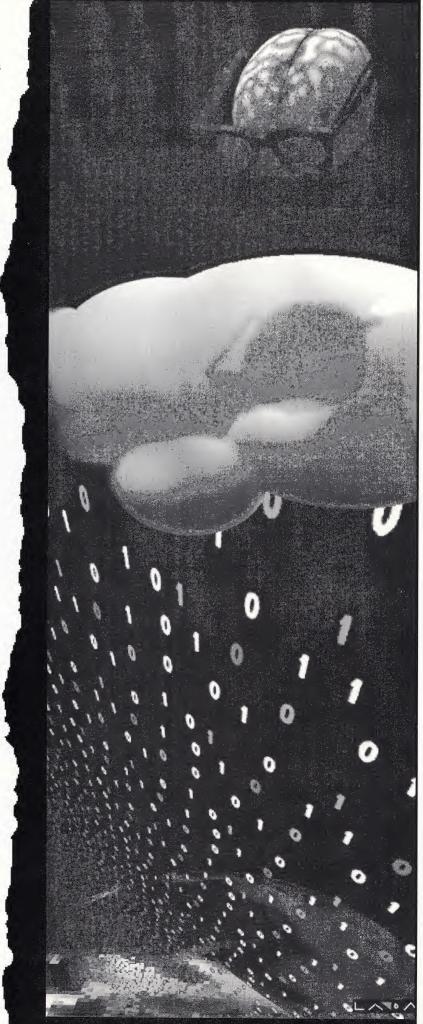
I suppose I'd still be willing to put a Cray in my cranium, but my faith in technology has moderated since early adolescence. I'm more comfortable with the possibility of an interface which fills the gap between keyboarding and neurological hardwiring and involves no cortical knife-play. Virtual Reality is almost certainly that.

And indeed, Virtual Reality may be so close to the implant side of the continuum that, as Randy Walser of Autodesk insists, it's not even appropriate to call it an interface. It's more a place... kind of like Fibber McGee's Ultimate Closet... than the semi-permeable information membrane we're accustomed to.

Whatever you want to call it, Autodesk's John Walker puts it this way, "If cyberspace truly represents the next generation of human interaction with computers, it will represent the most profound change since the development of the personal computer." Right.

But that still doesn't tell us what it's good for besides extending human quirkiness to the storage of immaterial stuff. After all, most of what humans do with computers is merely an improvement over

what they did with other keyboard-bound devices, whether typewriters or calculators. Word processing and numerical analysis will be no easier "inside" the machine than it was outside.

But let's quit being giddy for a moment. We're talking bucks here. Right now a good working platform costs almost as much as a CAT scanner. Who's going to buy

means.

Using a head-mounted display along with a handlebar-steerable treadmill, the building's future users "walked through" it, discovering, among other things, a discomforting misplacement of a major interior wall in the lobby. At the point of the discovery, moving the wall out was cheap. A retrofit following the first "real" walk-

they allow us to see into worlds which are not only too small but too *weird* to bring to human scale before. For example, they are showing us the infinitely detailed order of chaos, never before observable, in a form which makes it possible to appreciate its simplicity as well as its complexity.
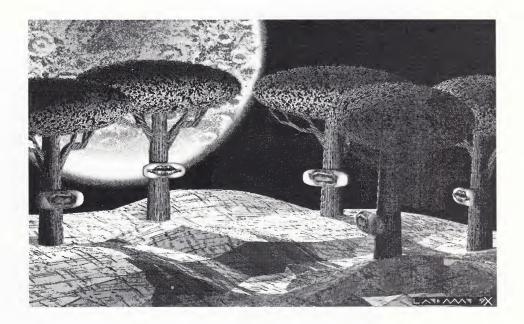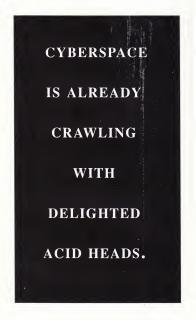
Virtual Reality promises the ability not only to see but to "touch" forbidden realms. Again at UNC, work is already quite advanced in which one can assemble complex molecules like Tinkertoys, the attraction or repulsion between individual atoms in the assembly modelled to the scale of human tactile perceptions. The drug industry alone could have uses for such capacity sufficient to sustain a lot of CyberBiz.

CYBERSPACE IS ALREADY CRAWLING WITH DELIGHTED ACID HEADS.

one without something like Blue Cross footing the bill? And why?

All right, there is a reason why Autodesk is involved in this enterprise besides some daydream of the Ultimate Hack. Whatever adventures they might entertain they afford by selling AutoCAD, the Dbase III of architecture. How many architects have dreamed of the ability to take their clients on a walk inside their drawings before their miscommunications were sealed in mortar?

Virtual Reality has already been put to such use at the University of North Carolina. There Sitterman Hall, the new $10 million home of UNC's computer science department, was designed by virtual

through would have cost more by several orders of magnitude. Thus, one can imagine retrofit savings from other such examples which could start to make DataSuits as common a form of architectural apparel as chinos and tweed.

Given the fact that AutoCAD is already generating about a hundred seventy million dollars a year even without such pricy appurtenances as cyberspace design tools, it isn't hard to imagine a scenario in which developing workstations for virtual architecture comes to look like very shrewd business.

Then there is the burgeoning scientific market. Computers are the new microscopes. Increasingly,

One can imagine a lot of heretofore inaccessible "places" in which one's presence might be scientifically illuminating. A *Fantastic Voyage* through the circulatory system will become possible (with or without Raquel Welch). Or travel to alien worlds. (Thanks to JPL, I have already taken an extremely convincing helicopter ride down the Vallis Marinaris on Mars.)

Then there are all the places which have never before had physical existence on any scale: the rolling plains of mathematical topologies, the humming lattice of quantum states, cloud chambers in which mu mesons are the size of basketballs and decay over weeks rather than picoseconds.

The possibility for less sober uses seems equally fertile. One can imagine VR salons, video game parlors for big kids with Gold Cards, in which a central supercomputer provides the opportunity for a score of people to *be* Ms. Pacman. Or whatever. Nolan Bushnell, the founder of Atari and something of an expert on the subject of video games, is already at work on something like this.

The list of possibilities is literally bounded only by the imagination. Working bodies for the damaged. Teleconferencing with body language. Virtual surgery. Hey, this is a practical thing to do!

And yet I suspect that something else altogether, something not so practical, is at the root of these yearnings. Why do we *really* want to develop Virtual Reality? There seems to be a flavor of longing here which I associate with the desire to converse with aliens or dolphins or the discarnate.

For a long time now technology has been about the business of making the metaphorical literal. Let's reverse the process and start to reinfect ordinary reality with luminous magic.

Or maybe this is just another expression of what may be the third oldest human urge, the desire to have visions. Maybe we want to get high.

Drugs, Sex, & Rock 'n' Roll;
Boot Up, Jack In, Get Virtual
Technology is the new drugs.
— *Jerry Garcia*

Knowing that Garcia is a sucker for anything which might make a person question all he knows, I gave him a call not long after my first cyberspace demo. Hell yes, he was interested. When? If I'd told him 6:00 AM, I think he'd have been there on time.

He adapted to it quicker than anyone I'd watched other than my 4 year old daughter Anna (who came home and told her sisters matter-of-factly that she been to a neat "place" that afternoon.)
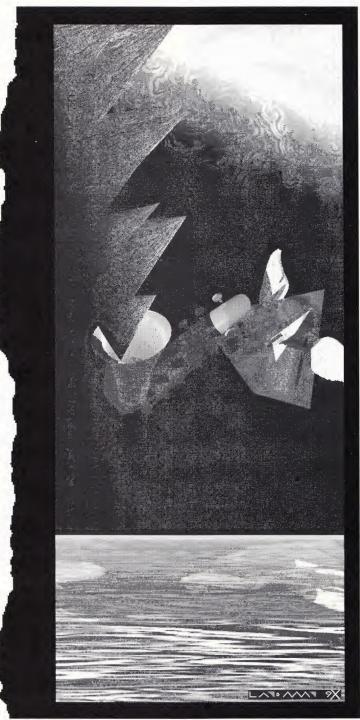
By the time he crossed back over to our side of Reality Horizon, he was pretty kid-like himself. "Well," he finally said, "they outlawed LSD. It'll be interesting to see what they do with this."

Which brings me to a point which makes Jaron Lanier very uncomfortable. The closest analog to Virtual Reality in my experience is psychedelic, and, in fact, cyberspace is already crawling with delighted acid heads.

The reason Jaron resents the comparison is that it is both inflammatory (now that all drugs are evil) and misleading. The Cyberdelic Experience isn't like tripping, but it is as challenging to describe to the uninitiated and it does force some of the same questions, most of them having to do with the fixity of reality itself.

While you can hardly expect people to lay down $15,000 for something just because it shakes their basic tenets, that's enough to make it worth the trip for me. I think the effort to create convincing artificial realities will teach us the same humbling lesson about reality which artificial intelligence has taught us about intelligence... namely, that we don't know a

damned thing about it.

I've never been of the cut-and-dried school on your Reality Question. I have a feeling VR will further expose the conceit that "reality" is a fact. It will provide another reminder of the seamless continuity between the world outside and the world within delivering another major hit to the old fraud of objectivity. "'Real'," as Kevin Kelly put it, "is going to be one of the most relative words we'll have."

And that's just fine with me, since so much of what's wrong in America is based on the pathological need for certainty and the idiotic delusion that such a condition can even exist.

Another reason for relating this to acid is the overwhelming sense of its cultural scale. It carries with it a cosmic titillation I haven't experienced since 1966. Always a telling sign that you are "time-tracking"

Finally, Timothy Leary is all excited again. Now I don't bow down to him as an oracle — I remember the Comet Starseed — but I have always thought that Uncle Tim is kind of like a reverse of the canary in the coal mine. Whenever the culture is about to make a really big epochal move, he's the first canary to start jumping up and down.

He's also, like *Zelig*, a kind of *Zeitgeist* chameleon. He spent the 40's in the Army. In the 50's, he was a tweedy young college professor, a Jules Feiffer cartoon. In the 60's, he was, well, Timothy Leary. In the 70's, he became, along with H. R. Haldeman, a political prisoner. He lived up the material 80's in Beverly Hills. Whatever America is about to do, Tim starts doing it first.

When I visited him recently, he was already as cyberpunk as he had been psychedelic when I last saw him at Millbrook 22 years ago. Still, his current persona seems reasonable, even seraphic. He calmly scored a long list of

persuasive points, the most resonant of which is that most Americans have been living in Virtual Reality since the proliferation of television. All cyberspace will do is make the experience interactive instead of passive.

"Our brains are learning how to exhale as well as inhale in the datasphere." he said. Like our finny ancestors crawling up on land, we are about to be come amphibians again, equally at home in visceral and virtual frames.
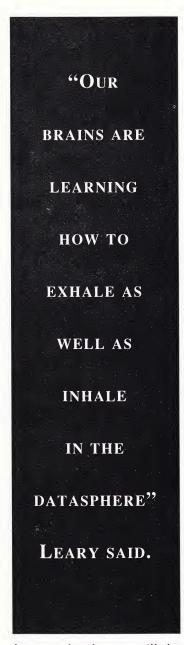
The latest bus is pulling out of the station. As usual, Leary has been on it for a while, waiting impatiently for it to depart.

Then there is the… uhhhm… sexual thing. I have been through eight or ten Q. & A. sessions on Virtual Reality and I don't remember one where sex didn't come up. As though the best thing about all this will be the infinite abundance of shaded polygonal party dolls. As though we are devising here some fabulously expensive form of Accu-jac.

This is strange. I don't know what to make of it, since, as things stand right now, nothing could be more disembodied or insensate than the experience of cyberspace. It's like having had your everything amputated. You're left mighty under-endowed and any partner would be so insubstantial you could walk right through her without either of you feeling a thing. (In fact, when people play tag in Jaron's *Reality Built for Two*, one strategy is to hide inside the other person's head.)

And I did overhear the word "DataCondom" at one point… Maybe the nerds who always ask this question will get a chance to make it with their computers at long last. (I prefer not to think too much of how anyone who would want to make it with a machine might treat the women in their lives… if any there be.)

Fortunately, I think these

"OUR BRAINS ARE LEARNING HOW TO EXHALE AS WELL AS INHALE IN THE DATASPHERE" LEARY SAID.

dreams of cybersex will be thwarted by their own realization. Yes, it will work for that purpose and it will be easy. But the real point of Virtual Reality, as with life itself, is *contact*. Contact with oneself alone is certainly a laudable enough goal, but the presence of half a million dollars worth of equipment between *that* subject and object is neither necessary nor desirable.

Even if Virtual Reality turns out to provide the format for the ultimate pornographic film… a "feelie" with a perfect body… it will serve us better as the ultimate telephone.

Life In The Datacloud
Scratching Your Eyes Back In

> There was a man who lived in town
> And he was wondrous wise.
> He jumped into a bramble bush
> And scratched out both his eyes.
> And when he saw what he had done,
> With all his might and main,
> He jumped back in the bramble bush
> And scratched them in again.
> — Old English Nursery Rhyme

> Information is alienated experience
> —Jaron Lanier

Since the Sumerians starting poking sticks into clay and claiming that the resulting cuneiform squiggles meant something, we've been living in the Information Age. Only lately did someone come up with a name for it. I suppose that was because we quit making anything else of value. Before that, they just called it civilization.

Indeed, one could make a pretty good case that consciousness, as we define it, arose simultaneously with the ability to communicate its products symbolically. (See *The Origin of Consciousness in the Breakdown of the Bicameral Mind* by Julian Jaynes for related conclusions.)

The Sumerians had a pretty clear perspective on what this stuff was good for. The preponderance of their runic tablets turn out to be, on translation, calendars, inventories, and mnemonic devices for such data as one might need to remember but which was too trivial to merit conversion into the other storage form of the era, epic poetry. They didn't use it to *describe* anything.

Perhaps they recognized that even the most mundane experience would beggar any effort to describe it if one were serious about creating a genuine simulation.

The Egyptians didn't have any such illusions either, but, in addition to keeping track of cubits and high water, they found symbols useful for their elaborate liturgical purposes. With so many *dramatis personae* in the pantheon, some method was required for sorting out each one's ritualistic preferences.

The Greeks, as was their wont, expanded the envelope further. To the previously established (and sensible) uses for writing, they added commentary, philosophy, calculation and drama.

As early as the 5th Century B.C. we hear the first warnings that information might constitute an abuse of experience. Socrates suggested that writing things down might damage your ability to remember them in their proper, full-bodied form — in other words, that notation might impoverish direct experience.

It wasn't until the 17th Century that things really got out of hand. Cervantes wrote *Don Quixote* and fiction was born. From that point, any experience could be plucked from its holy moment in time and pressed like a flower in a book, to be reconstituted later in the imagination of the reader.

The thin, alphanumeric trickle that is language became literature and was suddenly thought to be an acceptable surrogate for the churning torrent of shapes, smells, colors, sounds, memories, and *context*. These combine and coalesce in the cauldron of a human skull and become there something called "Reality." No longer did one have

to "be there." One could read about it and get the flavor well enough.

This absurd delusion is now universal. The only reason anyone believes it is that everyone does.

I, on the other hand, began to have my doubts around the time I started trying to create some of this magical information myself. Sometime in the 4th Grade, I began to write about the things that happened to me. For a while, the approval others showed my efforts was enough to inspire their continuation.

Gradually, however, the effort became painful. The inadequacy of my word-replicas for experience was increasingly clear. I tried poetry. This seemed to work until I realized that it did so because a poem is about itself and thus has no "real thing" to be compared to.

Writing *about* something continues to cause me nothing but anguish. The symbolic tools are hopelessly mismatched to their three-dimensional analogues. For example, the word "chair" is in no way like any chair.

Nor does it begin to imply the vast range of dissimilar objects to which one might apply it. You can hop it up with adjectives ("big red chair") or additional phrases ("big red chair that Washington sat in") but the result is usually bad writing without much advancement of your cause. I mean, "the big, deeply red, densely-brocaded, Georgian love seat that Washington sat in while being bled by leeches" is still, for all its portentous bulk, not a chair.

And if it were, it wouldn't *move* in the way that real things do even when they're standing still. Words just sit there. Reality vibrates and hums. I have a pet phrase for this element of the mismatch: Using words to describe an experience is like using bricks to build a full-sized, operational model of a fog bank.

Perhaps it was a subliminal recognition of this fact that caused America to fall in love with statistics. As a descriptive tool, numbers are even worse than words. They are very purely themselves and nothing else. Nevertheless, we now put everything from flowing water to the human psyche into these rigid numerical boxes and are especially straight-faced as we claim it fits in them.

In doing this, we usually follow a rule I call, with characteristic modesty, Barlow's Law of Real Numbers. This states that the combination of any two speculative numbers by any arithmetic operation will always yield a real number. The more decimal places the better.

Computers have hardly been part of the solution in this area. We pass our measuring grids over pulsating reality, shovel the results into our machines, thrash them with micro-circuits, and pretend that what floats up to the screen is "real."
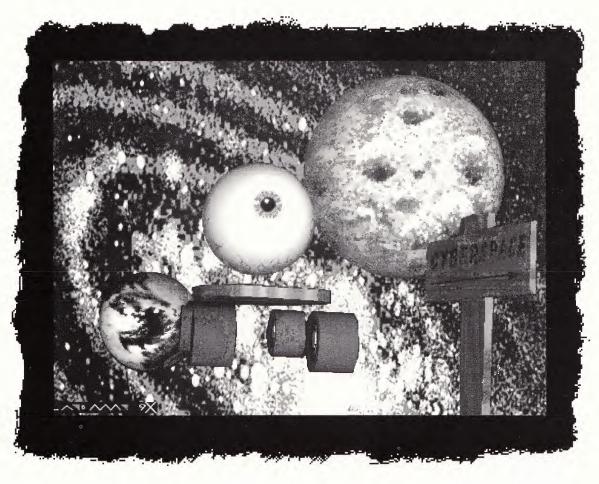
Horseshit.

What computers can do, and have done to a fare-thee-well, is to provide us with a hyper-abundance of such processed lies. Everything from *U.S. News and World Report* to *Penthouse* is now a dense thicket of charts, tables, graphs, and percentages. All purporting to tell us something about what *is*.

But it's all just information. Which, apart from the fact that it's not to be confused with experience, has several problems which Jaron Lanier succinctly enumerated for me: "The first problem is that it's information. The second problem is that it's linear information. And the third problem is that it's false information."

Or, as we say in Wyoming, "Figures don't lie, but liars can figure."
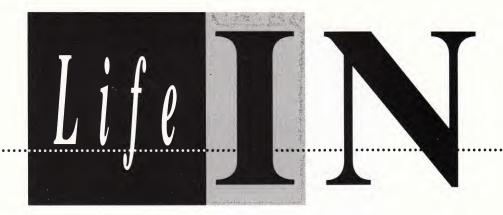
Virtual Reality is probably not going to cure this nonsense any more than television, its one-way predecessor, has done. The global supply of words, numbers, statistics, projections, analyses, and gossip… what I call the DataCloud… expands with thermonuclear vigor and all the Virtual Reality we can man-ufacture isn't going to stop that.

But it may go a long way toward giving us means to communicate which are based on shared experience rather than what we can squeeze through this semi-permeable alpha-numeric membrane. If it won't contain the DataCloud, it might at least provide some naviga-tional aids through it.

Life IN The DataCloud

I remember it very clearly. It looked like this. Jaron Lanier, whom I had never seen before, was walking across the central lawn of the Hebrew girls' camp in the Santa Cruz Mountains where the Hackers Conference is held. He was a diverting sight in the rays of the late afternoon sun. Amiable, round and dread-locked, he looked like a Rastafarian hobbit.

He was carrying a musical instrument which might have come from an undiscovered corner of the world. I couldn't tell whether it belonged to the family of drums or woodwinds. (I later learned that it was only one of over 300 ethno-instruments Jaron has wedged into his Palo Alto cottage.)

The only trouble with this pellucid memory is that Jaron was not at Hackers. In fact, I don't know when I actually saw him for the first time, but it could not have been there.

This phantom remembrance is an example of something which comes up a lot these days. I call it jamais vu, the vivid memory of an event that never happened. And, given what Jaron's work is doing to the margins of that collective hallucination we call reality, I expect jamais vu and other such perceptual irregularities will soon afflict more than the admittedly brain-damaged like myself.

SCRATCHING YOUR EYES BACK IN

John Barlow Interviews Jaron Lanier

Jaron's prophetic manner is well-located in his unusual 29 years of life. His mother survived a Nazi concentration camp and had become a painter in New York when Jaron was born. His father was a science fiction writer and was present for the famous wager of sci-fi writers which bore the Church of Scientology.

Information Is Alienated Experience
— Jaron Lanier

When he was still quite young, the family moved from New York to its antipode in hipness, El Paso, Texas. There his father wrote while his mother milked the Stock Market. After she died, Jaron and his father moved out of town and built a dome together in the least fashionable of New Mexico's deserts.

Before finishing high school, Jaron decided his ambition to become a composer would never bloom in New Mexico. In the late 70's, he ventured first to New York (where he spent time with the likes of John Cage) and then to Santa Cruz. Eventually he abandoned efforts to support himself as a street musician and took his first digital job designing sounds for video games.

Since then he has generated a prodigious reputation as a hacker, but he seems to regard the computer as a tiresome servant of more sublime purposes... ends that still relate as much to music as they would to any other category for which we now have a name. I mean, what exactly do you call a guitar that plays fish instead of notes?

The following conversations took place in different venues. The first interview was in Boston during the SIGGRAPH Conference. Virtual Reality was the hot topic at SIGGRAPH, and, by the time I caught him in the Hilton coffee shop, Jaron had been lionized into demi-divinity. Big new celebrity usually abbreviates an attention span, but his startling mind was operating at full rated horsepower.

A TALISMAN FOR WESTERN CIVILIZATION

JOHN BARLOW: In another life, I'm the junior lyricist for the Grateful Dead. One of the things I kept thinking about during your presentation yesterday was interactivity. The Grateful Dead tries to create an interactivity between our audience and the actual music... getting past the proscenium break. Have you thought about using Virtual Reality to create an audience interaction which would be more direct than that?

JARON LANIER: I think there's a relationship between the Grateful Dead and Virtual Reality in the sense that Virtual Reality is sort of a talisman for Western Civilization, a way for people to get ecstatic and be with each other. If you look at every other culture for every other period of time, there would be certain moments in life when people got together... had a true commons... and had a non-ordinary, really special experience with each other that affirmed their relationships and their lives, that became the center of their lives and was the most fun thing.

JB: Yeah. Meaning.

JL: Meaning. Right. It seems like that's what's so special about the Grateful Dead concerts. Western culture tends to reject most of the ways that people have done that in the past.

JB: They'll reject this one too...

JL: No, no. Technology *is* our culture.

IT'S NOT LIKE LSD!

JB: You could say that the reason drugs create a problem is because they enhance the delusion of control over reality. Don't you think this might further that?

JL: No. No. No. Look. Virtual Reality affects the outside world and not the inside world. Virtual Reality creates a new objective level of reality. You enter it in a waking state. There's a clear transition.

If you're ever confused about which reality you're in, you put your hand on your eyes and see if you're wearing eyephones or not. That simple. You take them off and you're out. Drugs are such a powerful metaphor that it's easy to forget the differences. Let me tell you the thing that's the most vital: You go inside of Virtual Reality and there are other people there. Other people are the life of the party. That's the key. Sanity is made of other people. They're there in Virtual Reality. They're not really there in LSD. OK?

Jaron Lanier

JB: Gee. I've had LSD experiences where it didn't seem like sanity was made of other people.

JL: You can't really abuse the stuff though.
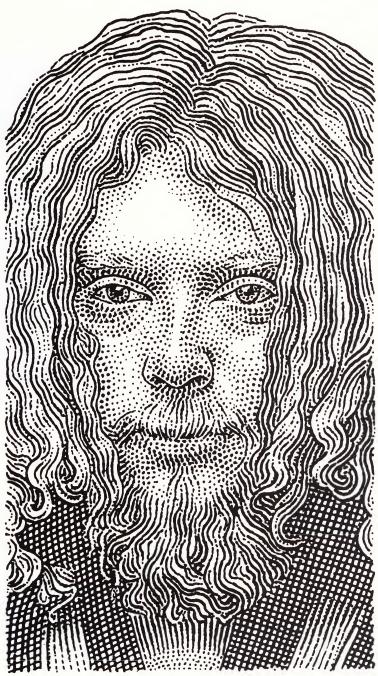
Look. We're talking about something that Mattel's going to sell a million of this year. Let's get clear on what we're talking about. A big American corporation selling a *million* this year.

JB: Well, there is a mutually arising nature to things. Good wouldn't mean anything without evil.

JL:: The evil in Virtual Reality will not come as a result of people getting screwed up or addicted. That's *not* what's going to happen. The evil is going to be people trying to control the freedom of others in it. It'll be corporations trying to control content.

JB: Yeah. Virtual Reality is going to be a great marketing device. Like the "feelies" in *Brave New World*, the corporations will probably try to make them passive experiences, where you can't mess with the pictures.

JL: That's what they'll want all right. They're not going to get it though. And the reason they're not going to get it is that Virtual Reality is made of other people. Period. All it is is a bunch of personalities that can be expressed through any form at all. But the actual meaning of those forms, which are infinite and ever varying, is simply the personalities of the other people.

Without the personalities, there's actually nothing there, because the forms become

courtesy of the Wall Street Journal

infinitely easy and cheap. My idea of Virtual Reality is that, in the long run, it's going to shut down television.

JB: Yeah! It's a hot medium.

JL: It's the hottest. In fact, it gets out of the hot-cold continuum entirely. It's not even a medium. It's a new reality. I don't think you can talk about it in McLuhan's terms for that reason. Virtual Reality is not going to be the television of the future. It's going to be the *telephone* of the future. And that's the key thing.

BREEDING REALITIES

JB: I spoke last night with Jean-Jacques [Jean-Jacques Grimaud, VPL's president and co-founder]. He said the way you got together was in the pursuit of a computer language for non-programmers. Is there something to that?

JL: Sure. It's a different way of saying the same thing. Virtual Reality exists so that people can make up their reality as fast as they might otherwise talk about it. The whole thing with Virtual Reality is that you're breeding reality with other people. You're making shared cooperative dreams all the time. You're changing the whole reality as fast as we go through sentences now. Eventually, you make your imagination external and it blends with other people's. Then you make the world together as a form of communication. And that will happen.

JB: How do you imagine the control surfaces in there once they become really sophisticated?

JL: They're musical instruments. You can play mountain ranges on the saxophone. You can play fish on the drums.

JB: Was music a central part of what motivated you to get into Virtual Reality?

JL: Yeah. Absolutely. Music is the form of communication where we speak with the whole body. You've got the body, you've got the mind, and you've got the soul all at once. What we don't have is content.

That is, specific content. The music itself doesn't have apples and buildings and ideas.

THE GOOD VS. EVIL TECH TEST

JL: Jobs went into Virtual Reality yesterday. He really liked it.

JB: I'll bet he did. This is something.

JL: This *is* something. And we haven't had a something for a while.

JB: You say there is protection from those darker elements because there's money in its success... they'll like this better than they like drugs. But at the same time, there's a lot of danger involved because of the money. Look at Steve Jobs' vision for personal computers...

JL: Believe me, I know that. I know that better than I can describe. As I say, I'm going to do my best. Sure, there are ripoffs afoot. There are cheap, stupid uses of it afoot. But there are happy stories. My favorite story is the telephone. The telephone is a total win.

I want to propose a test, whether a technology is good or evil. Here's how the test goes. If the technology makes people more powerful or more smart, then it's an evil technology. And the reason is that people are already pretty damned smart and powerful. All our problems except for a very few are self-brought. We have some issues with disease, we have some issues with earthquake safety. That's about it. Most of this stuff is just because we're idiots... or because we're greedy egotists — whatever.

JB: Or because we're afraid. Because of fear.

JL: Yeah! That's the single word. Fear. Because we're afraid. And

then if a technology helps people to communicate, has a potential to promote empathy but doesn't fundamentally increase power at the same time, then it's basically a good technology overall even though it might have many evil uses. I believe in that test. It tells you what's good and bad about computers and about telephones. I think Virtual Reality passes that test well. But then remember whom you're talking to.

At VPL • Redwood City, California • September 11, 1989

I met up with Jaron again a month later at VPL's Galactic headquarters in Redwood City, a third floor warren which is a lot less exceptional than the dwellers of his little tribe.

We sat in his office and looked out across a marina. Across the water, the gleaming new buildings of NeXT gave off a mythical shimmer. Beyond them was a mysterious barge reputed to contain the hunk of a Soviet sub fished up from the deep Pacific by the Glomar Explorer. A little closer front-end loaders labored on a mountain of salt Morton has extracted from the Bay. The combination was appropriately surreal .

In the next room they were working on the full-body DataSuit. "You've switched my knees with my elbows," its wearer suddenly complained. Jaron smiled and talked about the kind of world where a thing like that can happen.

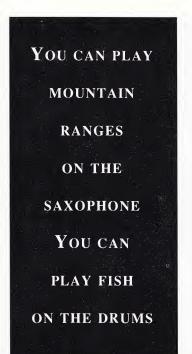**JB: One of the things I wanted to ask you about was your distinction between a good technology and a bad technology. I'm not ready to accept that anything which makes people more powerful individually is bad... except insofar as it makes them powerful in a vertical sense.**

JL: I think the argument applies only to fundamentally new technologies that make the species as a whole more powerful, as

opposed to individuals. In terms of the individual, that's another story. But at that point you're not really talking about fundamental technology, you're talking about applications. And, as with any rule, it's not like it should be applied in some rigid way.

IT'S GOT TO FEEL REAL

JB: I would guess that you're assuming some major revamping in the way the telecommunications system works right now in order to accommodate the kind of bandwidth that's going to be required by this.

> YOU CAN PLAY
>
> MOUNTAIN
>
> RANGES
>
> ON THE
>
> SAXOPHONE
>
> YOU CAN
>
> PLAY FISH
>
> ON THE DRUMS

JL: Very interesting question. There are some types of Virtual Reality over a network that don't require much bandwidth at all. If your world is only made of synthetic imagery without any real world imagery being brought into it, and if you have the right kinds of algorithms, you can really go quite low bandwidth because all you're doing is sending changes to a database about exactly where objects are and how they're tilted. And that doesn't have to take up a lot of information.

On the other hand, as soon as there are the fiber optic lines and ISDN standard implemented, you can really take advantage of it in Virtual Reality by bringing in higher-quality realities that incorporate some real world imagery. But we can actually do quite a strong level of Virtual Reality over the present phone system.

JB: Would it be proper to characterize your approach here at VPL as being "highest tech" — in the sense of using the biggest horsepower, heaviest computational models that you can come up with — as opposed to, say, Autodesk, where they seem to be trying to come up with a Model T?

JL: It's kind of early. We have to see what people really want. My sense is that the Autodesk system has to be more powerful than it is to be used. And so the price is going to go up over what they think. I think people will need a certain level of quality and will find a way to pay for it. Virtual Reality has to feel real or it's not a reality, you know? We wanted to make a statement by making the best quality Virtual Reality we could make.

POWERGLOVE

JB: Tell me about the PowerGlove. What happened there?

JL: From the start, VPL had the idea that we wanted to make things that were cheap and accessible to people. For years we've been working on a lower-cost, mass-producible glove for kids. We'd been shopping it around for a while and finally Mattel took the bait and brought it to market. It's out. It's not the equivalent of a DataGlove.

JB: This was licensed from VPL by Mattel?

JL: Yeah. There's some legal excitement around the details of that. I can't really say anything formally though.

JB: What is the PowerGlove being hooked into?

JL: It's a Nintendo game machine. I do want to say that the Power-Glove is really an exciting product and I think it's kind of a miracle that it's available at the price it's at.

JB: Ninety bucks?

JL: Yeah. Eighty five, sometimes lower. It's not the equivalent of a DataGlove though. It's kind of a miniature glove and it's not really suitable for Virtual Reality stuff or anything bigger than a Nintendo type machine. But it's great for that. It's a really good thing.

JB: Would it appear on the screen?

JL: The way it works is that there are kind of two ways to use it. One way is with existing games that weren't meant to be used with it and for that one it spits out macros for joy-sticks. So if you gesture one way, it'll make a certain sequence of joy-stick commands.

JB: Is it programmable?

JL: Well, you can't exactly program it yourself, but you can select from a bunch of templates. And there's a little wrist box with buttons that kids think are really cool. And then Mattel is getting up some games specifically for it that will take advantage of it as a glove.

INCREASED EFFICIENCY/ DECREASED ARTISTRY

Jb: I was up at Autodesk the other day talking with Randy Walser, and he said that they had consciously stopped using the word "interface" up there. And the reason for that was they felt they were working on a technology which would eliminate any definable edge between the machine and the human. Between Mind and, uh, mind. What do you think about that?

JL; Well, between body and body. Let's be clear about that because mind is another thing. But, yeah, I agree with that. Absolutely. We haven't been so fastidious with our speech because we're a sloppy bunch of guys over here.

JB: I protested a bit because it seems such a useful term.

JL: But I would agree with them. Just saying the word "interface" implies that somehow a computer and a person are on an equal footing and that this interface is a go-between kind of thing. That's not the right way to think about it. The computer is meaningless. The only thing that's important is human experience. So in that sense, the term is insulting to the human organism.

JB: How do you think Virtual Reality is going to affect the way we experience things in the normal course of our lives?

JL: There's a bunch of ways. For one thing, I think it will make novelty seem, ah, *more so* in the physical world. Because in the virtual world all possible objects are in infinite supply since they're all made of imaginary stuff. So the distinction between things— different forms, different histories — really breaks down and isn't very important. And in terms of creativity — the human point of view, the human experience — those things start to stand out because the forms are equally accessible. That contrasts markedly with the physical world where novelty is everything. I hope that really takes hold, because I think it would be a plus for the ecology movement, for the appreciation of cultural artifacts.

My view of what goes on in the physical world right now is that we try to use the physical world as if it were Virtual Reality, as a way to reach each other. The physical world isn't really good for that, because it has limited resources, limited forms. We have very limited power in it. But with the increased efficiency brought about by technology, we're able to be more powerful expressing our actions in the physical world.

What's odd is that when we do that, there's a natural breakdown in the beauty of form.

When you do things in the real world, you don't have enough power to begin with. That's the big problem. That's why we have technology and science. That's why Western Man is always so humbled in his attempts to be Western.

JB: Because you can never manipulate things as thoroughly as you want to manipulate them.

JL: Right. So when you increase efficiency you decrease artistry. That's a terrible shame. The weird thing is, if you look at modern buildings, they look like they're in Virtual Reality already. They look like they're a computer rendering, because they're all made out of pre-fab parts, they have these funny proportions that naturally come out of computer modelers that weren't designed by artists, and they have these textures that are straight from a Garould shading engine. It's ridiculous.

JB; Like the Fairmont in San Jose.

JL: Doesn't it look like a rendering? It's very ironic how that came to pass. Originally that idea of getting rid of ornament in architecture — the whole idea of recognizing ornament as a separate thing... was from the Bauhaus and some of the other modernist movements. It was supposed to be a reaction against a kind of stultifying tradition that was associated with political unfairness. It was supposed to help people see through sentimental and traditional values that were preventing them from having a fair society. But then it turned instead into just a way to do things more cheaply. And a way to do things that're aesthetically safe and beyond any possible objection because it doesn't have any particular appearance or cultural identification.

Well, anyway, in Virtual Reality each building is as easy as the next, from a practical point of view.

From an artistic point of view, of course, it still takes more work to make a beautiful building, but that's work that will be enjoyed. All you can do is be creative in Virtual Reality. There's really nothing else to do.

That's a thing that must sound very alien and strange. Everybody has this reaction: "who'd want to be creative, it's so much work, I just want to, like, be lazy and have this stuff presented to me." *That's* a weird concept to me. That's just an illustration of the sickness of the 20th Century where people grew up with television. There will never be another generation that has that attitude. It's very bizarre.

You Made It

JB: Wendell Berry said that he didn't think this was a very materialistic culture because we don't take care of material things. I wonder if Virtual Reality isn't going to make it possible for us to treasure the real, material things more acutely.
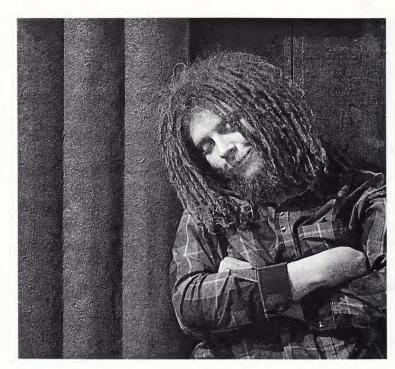
JL: Oooohh God! That's one of my deepest hopes for it. And he's absolutely right. Our society is not materialistic at all. What we do is worship these abstractions outside of ourselves. We worship the *idea* of wealth. One of the things that's very striking about Silicon Valley is that, as it has become richer, the quality of life has gone down. For instance, when I moved to Palo Alto there were a great many more eccentric locally-owned businesses. It was a lot more fun. There were a lot more musicians who could afford to live there and artists. There was more of a spread in the community.

Now the community is largely

made up of people in their thirties who are involved in the computer industry. It's much narrower. This is not saying there's anything wrong with those people, but just that the diversity was killed off by the money.

And also where you used to have a lovely local French restaurant, now you have a Burger King, because Burger King can afford to finance a Palo Alto rent and a local French restaurant can't. So wealth has brought mundanity.

The way that people live separated from the most obvious actual

experience of their lives is amazing. It's just shocking.

JB: We have a culture which, for the last two hundred years or so, has tried to take the mythological and the metaphorical and render them literal. We are now at the point where there is a strong urge to take the literal and make it metaphorical. I feel Virtual Reality could become a tool for that purpose.

JL: Hmmmm. That's interesting. There are so many places I can go from that comment.

JB: Grab one and run.
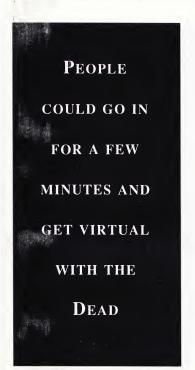
JL: OK. The American Stupor. The stupor of the 20th Century that allows us to ruin our very lives in order to be wealthy and powerful and safe... that kind of blindness and crazy stupor is only possible because of this sense we have of being passive, with the world presented to us. There's this model that it's easier to watch television than to do something because you're being passive. There's this equation of passivity with easiness. The idea of luxury revolves around being passive.

Which is a very strange concept if you think about it. I'm amazed at how the rich seem to lose the quality in their lives even quicker than

the poor people. A good recent example is that Westin Hotels are going to start keeping a Big Brother database on their guests to serve them better. But it amounts to the guests losing privacy and freedom.

In Virtual Reality, there's no question that your reality is created by you. *You* made it. Or somebody else did whom you know. There's no sense of it being handed to you on a platter.

JB: That may be the actual case anywhere.

JL: Well, it is, but in Virtual Reality, it's so explicit. In Virtual Reality, even your body looks like you did it. It's undeniable. I think being in that mode of realizing how active every moment in life is will break through the stupor. It's just got to make people notice what's in their lives when they have that experience. That's what I'm hoping.

DEALING WITH THE DATACLOUD

JL: The whole idea of information... I think the opposing idea is experience. Information is alienated experience.

JB: Excellent! That's right!

JL: Computers are great but they require making life into information since that's all a computer can hold.

JB: And it's a very thin stream, this information.

JL; Oh, yeah. The first problem is that it's information. The second problem is that it's linear information. And the third problem is that it's false information. (Laughter.)

JB: The map, not the landscape. These things seem to be taking the map further and further away from the landscape.

JL: The computer is a map that you can inhabit. Which is very seductive. It's mostly seductive because you love what you have to struggle for, but it's also seductive because it makes you seem very powerful in comparison to it. So it's good for the ego.

Virtual Reality is a new landscape, not a new map. That's what makes it a completely different thing from computers.

JB: I'm thinking that Virtual Reality is the first thing I've seen that might give us tools to tame the Datacloud.

JL: You know what I say to that? You're right. But I don't care about dealing with the Datacloud, 'cause it's all garbage information in there anyway. What I care about is just sharing simple things with other people — more richly.

I mean, there's a thing about the Datacloud. The mere amount of information not only doesn't indicate anything about the quality of the information, but, if anything, it probably has an inverse relationship to it. Because the more information there is, the more likely that it was gathered in some automatic way. Information is only as good as the care that's put into it.

JB: Garbage in, garbage out.

JL: Exactly. That's what's so insulting about this Westin Hotel plan. It reduces their supposedly honored guest to a stupid little database

about what kind of juice they like in the morning.

That phenomenon of people narrowing themselves in order to make information look good is the single most dangerous thing about computers. And it's the biggest problem with AI. It makes AI untestable. You never know if you're limiting yourself or if the computer's actually getting better. To me, the data that's worthwhile is the data that people put in there with love in the first place. This Datacloud... I think most of it's junk.

JB: Still, people are going to need tools to keep from being overwhelmed by it. Look at Congress. All those guys are in datashock.

JL: They have no idea what's really going on in the world.

JB: They have the attention spans of houseflies. Because they're under continual bombardment by well prepared, extremely persuasive information.

JL: I hadn't thought about that. You must really be brain-dead after serving a term in Congress. You can't really have bullshit without symbols. You can have lies, but lies are easier to cope with and a lot less damaging than hype.

In that regard, the post-symbolic communication of Virtual Reality — if it blossoms as I hope it will — could be useful. Of course, Bullshit's very seductive. All of us fall into it. I think the Reagan years were very damaging in this way. Reagan, of all people in public life, was the one that was the least involved in reality and the most involved in... uh...

JB: The inappropriate use of metaphor.

JL: Right. Exactly. He increased the tolerance for that kind of stuff immeasurably. Before the Reagan Era, people had more conscience about being *utterly* deceptive and now it's taken for granted. It's really disturbing to me. I think that Reagan probably instituted a level of unreality that's going to be

a long-term part of American culture. There are some cultures in the world that are fundamentally deceitful and I think ours is going to be one of them now. It's a hard thing to crawl back once you've slunk into that particular pit. I find in business now you're expected to lie a certain amount.

Technology has played a big role in this. That's why I think that technology must help to improve it. Ultimately, everything is done by people and technology is only a little game that we play. But as it happens, our culture treats technology as a very important guiding phenomenon. That's why I think the introduction of a new technology can have a profound impact on our culture. All the big introductions of media technology in this century have had huge effects on the culture. I think Virtual Reality will too.

All the others have limited people's ability to communicate with each other and to experience the world. Now that's not common wisdom. Common wisdom would say that television's brought us the world and created a Global Village. But actually it separates us from the actual experience of the world. Instead, it gives us instead a little denatured version, and one that we're not in control of... so we lose our activity. That's where we *really* lose the world, because activity is everything.

Virtual Reality is the first medium to come along that doesn't narrow the human spirit. That's the most important thing about it.

JB: There's an old English nursery rhyme which goes something like this:

"There was a man who lived in town
And he was wondrous wise.
He jumped into a bramble bush
and scratched out both his eyes.
And when he saw what he had done
With all his might and main
He jumped back in the bramble bush
And scratched them in again."

JL: (Laughter.) That's wonderful. Gee, I might want to use that as a quote in my book.

JB: I feel that's what we've got to do. In 1970, my response to technology was to go back to the land. And a lot of people did that. But we went off to our communes and cattle ranches and technology rolled on unmodified by the likes of me for a long time. We can't avoid the issue. If we're going to have a world that's fit for habitation, we'll have to use technology to make it that way. We have to scratch our eyes back in with the same bramble bush.

JL: Yeah. We have to recreate the world as it is in front of our noses… the world we've lost touch with. Our noses have gotten awfully long, I tell you that.

JB: All that lying.

JL: (Laughter) But my nose is three miles long!

You Don't Have "You"

JB: One thing that occurred to me about Virtual Reality is that you can't have any possessions in there.

JL: Not only that, you don't have "you" exactly. You see, in Virtual Reality the whole world is your body — equally — and everybody shares the same body. Check it out. It's true.

JB: That's right… I guess. Wow.

JL: You know how Alan Watts once formulated the universe as a creature that looks at itself in a million ways and each of the ways was a person? Virtual Reality is a reality just like that.

JB: How long do you think it's going to be before Virtual Reality is sufficiently user-malleable that anybody can get in there and start creating any kind of environment that he wants?

JL: *That* is the most important question in the field of Virtual Reality. And that's why Embrace [VPL's programming language for Virtual Reality, currently under development] is my goal right now. I think a couple of years. Maybe a year.

JB; That soon?!?

JL: We're already quite good. We put together worlds real fast here. We put together worlds in an hour or two. And it has to become a few seconds.

Reality On Wheels

JB: What about systems that are based on some other imaging model altogether? What about, say, rapid laser passes over the body — flesh made bar-code. Are people working with that?

JL: Yeah. Sure. I think we're going to be doing some stuff very much like that.

JB: That has no potential for tactile feedback, but it might be more accurate, mightn't it?

No. This actually brings up some subtle issues. You see, when you're in Virtual Reality, you don't have a body that looks human. You become some other creature or something. Like you become your "power animal" if you're of a spiritual bent. Just for fun, you'll take on all kinds of different characters. A lot of people want to become hysterical… er… historical… (Breaks up.) Anyway, like if you want to become a knight in shining armor or a movie star… whatever. A surprising number of people have talked about wanting to have a sexier body in Virtual Reality… sort of a strange thing…

JB: Very strange, since it isn't a body at all.

JL: Oh, it's a *body*, it's just not a particular body. It's a thought body. The thing is, the way your body is in Virtual Reality doesn't correspond to the extent of your physical body. We just create some transfer function between what

your physical body is doing and your virtual body.

JB: We've got a long way to go. I think what excites me about it is not what it is but what it demonstrates the ability to become. What I'd like to do is come back down here with the Grateful Dead after you've gotten your new Power Iris [Silicon Graphics' monster computer] up and at 'em.

JL: You know what I was thinking would be a good thing to do with the Dead would be to put them inside Virtual Reality during a show and then rear-project the scene inside Virtual Reality on a screen

behind the band so the audience can watch them become creatures and stuff, playing their instruments.

JB: Yeah! Yeah! Yeah! (Laughter.) I think that's a great idea.

JL: You could even have an audience participation station where people could go in for a few minutes and get virtual with them. I think it would be fun.

Oh also, we're going to do this really cool thing pretty soon. We're going to set one up in a van and drive around… Reality on Wheels… so a lot more people will be able to experience it. We'll be able to drive around to different conferences and what have you.

Autodesk's thing is fairly portable now. It's in a single computer and stuff. But the kind we're doing is in really big machines. It's a hassle to take it apart and put it together. So this let's us move it around.

JB: Well, you're doing the Dusenberg to their Model T.

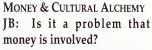JL: We have both extremes though. I mean we have the PowerGlove and then we have all this big stuff.

Gut Mandala

JB: It occurs to me there are a lot of ways people produce signals to the outside world that could be used here. For example, skin temperature — chemical composition of sweat at various points — all these things that are there and available for sensing.

I've worked with that in the past. Walter Greenleaf and I did a crazy product once. It was a bio-feedback game, where you put your finger in a clip and it was able to measure a lot of body signals at once. The way the screen was, it had your guts out, so you could watch them in this sort of mandala. And the mandala gave a gauge about how your guts were behaving. Kind of interesting.

The reason I did it with real guts on the screen was that I was so sick of this demure metaphor in health when what you're actually made of is guts.

MONEY & CULTURAL ALCHEMY

JB: Is it a problem that money is involved?

JL: Well, there's no other way. This stuff costs. Also, if it's going to mean anything to our culture, it has to be business.

Remember, we're doing cultural alchemy here. We're introducing a new talisman into Western Civilization. So we have to work with what we've got.

JB: What will happen if this company becomes very successful?

JL: You mean like Apple level.

JB: What kinds of thought have you given to beating the system?

JL: I don't think we're trying to beat the system. I think we're trying to inspire the system.

JB: As companies attain a certain scale, it seems like the visionaries leave, managers enter the picture, and some fundamental creativity is lost.

JL: Institutions aren't real. People group and un-group in these magical moments... these little points in history in which some new creation can happen. There's a life and death of social objects just as there is with individuals.

I don't think it's a well-formulated goal to keep a creative group of people together in the same way forever.

Institutions are halfway houses for the partially inspired. Right now we're in an inspirational mode and we're not an institution. We'll turn into an institution perhaps.

ASYMMETRICAL SPONGE

JB: Do you think Virtual Reality is going to make the decentralization of business possible? There's an old dream...

JL: Yeah. *Not commuting.*

What's desirable is to stop this madness of spending dead dinosaurs polluting the world irrevocably — to move people around to

jobs they hate and are bored by every day — many miles away from where they live. That madness has to stop!

It's pathetic. Let me share one thing with you that I often think when I'm sitting here. When Europeans first came to the Bay Area, they often couldn't see the sky because of how many birds there were. The Bay Area had one of the highest densities of wildlife in the world. It was just massive flocks of birds. And there were huge populations of all kinds of shell fish and sea mammals.

JB: This is now a strikingly barren ecosystem from the perspective of someone who comes from a wild place.

JL: It's trashed.

Anyway, that madness has to stop. The way American cities are is just stupid beyond... in the future, nobody will even believe it. They'll hate us for having harmed their lives so much. Particularly the present generation.

We are going to be the hated generation. We're gonna be vilified. Nobody will even believe what we actually did. Stuff that seems normal to us now, like this thing of millions of people getting into these cars and burning fossil fuel to move really far away because of money and status and all that. So I certainly want to stop that.

A lot of what Western culture is about is a flight from death through the construction of the ego. That's what sets us apart from other world traditions. It's not necessarily a bad thing. I think egos are for pleasure too. They give us a thing to enjoy. There is a really great thing about that. It's very fundamental.

My fantasy is that Virtual Reality will be a sponge that will absorb human energy. And it's asymmetrical. If Virtual Reality absorbs aggressive, evil, ugly energy then all you get is fantasy concentration camps or whatever, which might not be good but has got to be better than real ones. Whereas if it absorbs beautiful, loving energy, what you get is wonderful art, wonderful experience.

So it denatures the bad, but the good is inherently natured when it's sucked up into Virtual Reality.

JB: In other words, virtual bullets don't kill, but virtual beauty is just as beautiful. What about time? It seems to me that time is elongated in there.

JL: Time is the veil that allows us to experience the next moment with surprise and allows us to be conscious of the ever-lifting veil.

In Virtual Reality there are two kinds of time. The particular experiences that make up time can be de-coupled from physical time. You can play back your old experiences, you can go through them backwards or forwards, fast or slow. And that's a pretty profound thing, because, as it happens, the way people experience time is very much based on the outside world and not on internal sense.

JB: Based on the Second Law of Thermodynamics, it seems to me.

JL: If you just put somebody in an isolation tank, they have some sense of the passage of time but not a lot. So time is another one of those things that only exists in activity.

So in Virtual Reality, time becomes this fluid medium. It's not going to be as hard-synched as it is in the physical world. In the physical world, time feels pretty consistent and continuous. In the virtual world, it's going to change all the time. I don't mean to scare people, but it *is* different. •

TELEDILDONICS:

REACH OUT AND TOUCH SOMEONE

Howard Rheingold

The first fully functional teledildonics system will probably *not* be a fucking machine. You will not use erotic telepresence technology in order to have sex with machines. Twenty years from now, when portable telediddlers are ubiquitous, people will use them to have sexual experiences with *other people*, at a distance, in combinations and configurations undreamt of by precybernetic voluptuaries. Through the synthesis of virtual reality technology and telecommunication networks, you will be able to reach out and touch someone — or an entire population — in ways humans have never before experienced.

Dildonics — it had to happen. It is the unnatural fruit of the marriage of lust and craft. The word "dildonics" was coined by visionary computer pontiff Ted Nelson in 1974. Ted is best known as the inventor of hypertext and designer of the world's oldest unfinished software project, appropriately named "Xanadu." As originally conceived, it described a machine invented by San Francisco hardware hacker How Wachspress: a device capable of converting sound into tactile sensations. (Patent #3,875,932). The erogenic effect depends upon where you, the consumer, decide to interface your anatomy with the tactile stimulator. Picture yourself a couple decades hence, getting dressed for a hot night in the virtual village. Before you climb into a suitably padded chamber and put on your headmounted display, you slip into a lightweight — eventually, one would hope diaphanous — bodysuit. It would be something like a body stocking, but with all the intimate snugness of a condom. Embedded in the inner surface of the suit, using a technology that does not yet exist, is an array of intelligent effectors. These effectors are ultra-tiny vibrators of varying degrees of hardness, hundreds of them per square inch, that can receive and transmit a realistic sense of tactile presence in the same way the visual and audio displays transmit a realistic sense of visual and auditory presence. You can reach out your virtual hand, pick up a virtual block,

There was a young man named Racine,

who invented a fucking machine.

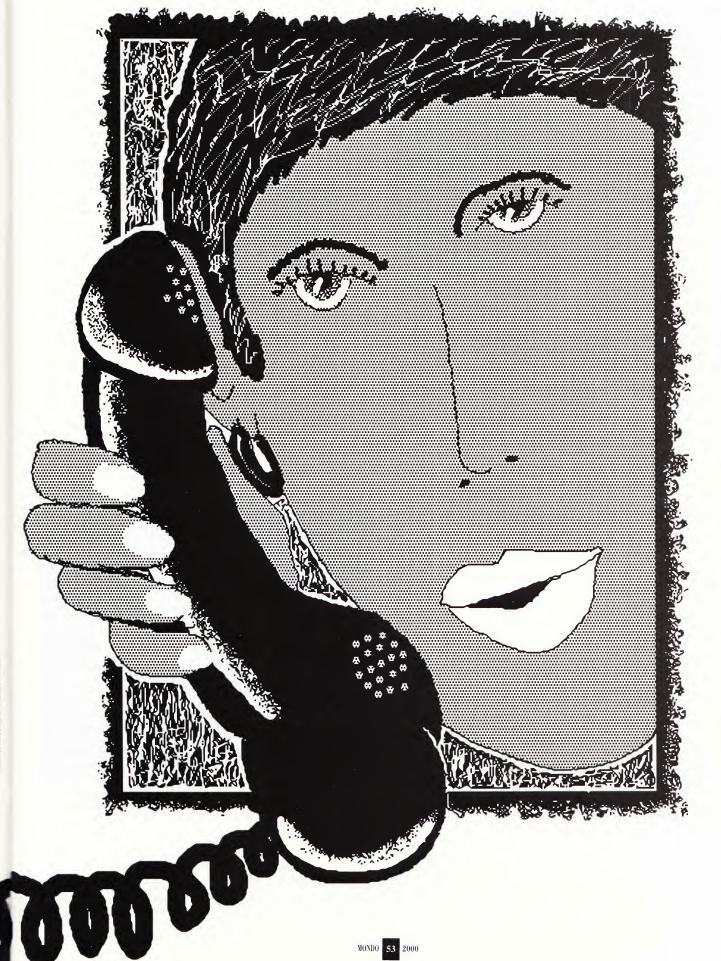*Concave or convex, it fit either sex,*

and was exceedingly simple to clean.

and by running your fingers over the object, feel the surfaces and edges, by means of the effectors that exert counterforces against your skin. The counterforces correspond to the kinds of forces you would encounter when handling a non-virtual object of the specified shape, weight, and texture. You can run your cheek over (virtual) satin and feel the difference when you encounter (virtual) human flesh. Or you can gently squeeze something soft and pliable and feel it stiffen and rigidify under your touch.

Now, imagine plugging your whole sound-sight-touch telepresence system into the telephone network. You see a lifelike but totally artificial visual representation of your own body, and of your partner's. Depending on where you go and where you are allowed and what you are willing to pay (or trade or do) you can find one partner, a dozen, a thousand, in various cyberspaces that are no further than a telephone number. Your partner(s) can move independently in the cyberspace, and your representations (aka "puppets") are able to touch each other, even though your physical bodies might be continents apart.

Every nook and protuberance, every plane and valley and knob of your body's surface, will require its own processor. Technically this is the limiting factor in the evolution of teledildonics: the development of extremely powerful computers to perform the enormous number of calculations required to monitor and control hundreds of thousands of sensors and effectors. Fiber optic networks can already handle the very high bandwidth that telepresence requires. But it may take

decades to develop the mesh of tiny, high-speed, safe but powerful tactile effectors. Today's vibrators are in the ENIAC era.

The tool I am suggesting is much more than fancy vibrator, but I suggest we keep that archaic name. A more sober formal description of the technology would be "tactile telepresence," and it is much more than a gleam in the eye of a horny hardware hacker. Part of the infrastructure for a dildonic system exists already in the form of computerized clothing and head-mounted displays that permit people to enter the fully three-dimensional illusion of an artificial reality.

Teledildonics is inevitable given the rate of progress in the enabling technologies of shape-memory alloys, fiber-optics, and super-computing. Enormous market-driven forces will be unleashed when sex at a distance becomes possible. Questions of morality, privacy, personal identity, and even

IT IS THE UNNATURAL FRUIT OF THE MARRIAGE OF LUST AND CRAFT

the very definition of Eros will be up for grabs.

If everybody can look as beautiful, sound as sexy, and feel as nubile and virile as everyone else, what then will have erotic meaning?

If you can experience sexual frissons or deep physical communion with another person

with no possibility of pregnancy or VD, what then of conventional morality?

If you can map your hands to your puppet's legs, and let your fingers do the walking through cyberspace, there is no reason to believe you won't be able to map your genital effectors to your manual sensors and have direct genital contact by shaking hands. What will happen to social touching when nobody knows where anybody else's erogenous zones are located?

Clearly we are on the verge of a whole new semiotics of mating. Privacy and identity and intimacy will become tightly coupled into something we don't have a name for yet. In Unix systems, files and programs and groups of users can be grouped into nested hierarchies by a system of "permissions."

The protocols of passion are something we can only guess at now. In cyberspace, your most public persona — the way you want the world to see you — will be "universally readable," in Unix terms. If you decide to join a group at a collegial or peer level, or decide to become informationally intimate with an individual or group, you will share the public keys to your identity permission access codes. The physical commingling of genital sensations might come to be regarded, in time, as a less intimate act than the sharing of your innermost self-representations.

Finally, with all those layers of restricted access to self-representations that may differ radically from layer to layer, what happens to the self? Where does identity lie? And with our information-machines so deeply intertwingled with our bodily sensations, as Ted Nelson might say, will our communication devices be regarded as "its"… or will they be part of "us"? •

Sense8 Plans Affordable VR Now

Arthur Bodisco

Today, we deal with computers through conversational user interfaces. As can be seen from the current market rivalry between competing window management systems offering only minor variations of the same basic features and gadgets, this generation of user interface is mature.

So what's next?

"Virtual Reality" (VR) is seen by many as the next obvious step in the evolution of the human-computer interface. This evolution from the conventional 2-d screen-based interface of today to the 3-dimensional interface of VR is a significant one, because the VR interface benefits from the user's real-world experience of 3-d

interactivity and visualization.

Sense8 Corporation is a newly formed VR software company, currently developing a product that will put "VR" on the desktop of today's PCs and workstations.

Sense8 founders include some of the principal programmers and hardware designers formerly involved in the Autodesk Cyber-space project.

"We are developing software tools for constructing and using VR systems on a variety of low-cost platforms," remarks Eric Gullichsen, a co-founder of Sense8. "Our system, codenamed OS/3D, encapsulates the operation of 3-d input and output devices, and provides an extensible and portable substrate for developers who wish to write VR applications."

The immediate ambitions of Sense8 tend more toward the practical than the mystical.

Sense8 founder Eric Gullichsen, gives VR a Hand   Photo: Wes Thomas

"Although the potential of VR is unlimited, we're concerned with putting realtime 3-d graphics on the desktop in a manner and for a price that is practical for business *today*," contends Dr. Patrice Gelband, Chief Scientist at Sense8. Sense8 intends to remain at the forefront of the emerging virtual reality industry, by addressing a variety of key vertical markets as the technology matures to make each of them viable. •

MORTON L.HEILIG *and the Genesis of Synthetic Realities*

A Factual
Historical Vignette
by
Eric
Gullichsen

STEP down from the podium if you will, Jaron. Sorry, Marty Abrams.

Our apologies, Myron Kruger. Your *Videoplace* is an early contender, but you are not the one either. Ivan... Ivan Sutherland, where are you? Your innovations in hardware matrix multiplication and clipping were praiseworthy, your stereoscopic CRT headmount outstanding, and your speculations way back in '65 about the ultimate display being a room in which the existence of matter itself is under computer control were unquestionably ahead of their time. But the evidence is in, the dusty microfiche scrutinized, and acclaim for the invention — and fabrication — of the many seminal technical aspects of what is now being popularized as Virtual Reality is due... Morton L. Heilig.

Who?

Mr. Heilig is the holder of U.S. Patent 3,050,870, filed in 1961 for a device known as the "Sensorama Simulator" (Figure 5 from the patent). The Sensorama apparatus is intended to realistically present simulated experiences by:

> *...stimulating the nervous system with a wide variety of sensory stimuli in forms that are natural to it, i.e., color, visual movement, complete peripheral vision, 3-D, binaural sound, breezes, odor and tactile sensations.*

Some 30 years ago, Mr. Heilig was able to assemble this mechanical device incorporating film loops, odor cannisters triggered electromagnetically from information on a film track, and vibrating knobs and seat. Considerations were even given to hygiene, with a built-in UV light sterilizing the brow rests between uses.

Just as VPL Research today offers the "Reality Built for Two," so did Heilig's prototype accomodate four humans simultaneously.

Heilig's intent was to provide a "natural" rather than a synthetic environment simulator, for purposes of training people in realistic situations without the cost or dangers associated with the real thing.

Only today are Virtual Reality researchers beginning to rediscover the potential utility of video in virtual environments. And none of the existing VR implementations today employ as wide a range of sensory stimuli as did Sensorama. It is rumored that one of the early Sensorama demonstrations involved a simulated motorcycle ride through Manhattan, complete with potholes and wafting smells of pizza!

In spite of this bulk of evidence, some may yet wish to deny Mr. Heilig his rightful claim to the paternity of VR technology. Documented evidence of his virtuosity predates Sensorama. His patent for "Stereoscopic-Television Apparatus for Individual Use" filed in 1957 (U.S. patent 2,955,156) bears an astonishing resem-blance to the cyber headgear in vogue today, with wide angle optics and individual lightweight display screens for each eye of the viewer.

One significant difference between Sensorama and today's VR systems is that Sensorama provides predetermined sensory experiences, while the power of the computers implementing VR offerings permits serendipity and dynamic exploration of synthetic enviroments. One can hardly fault Mr. Heilig for this, given that even the transistor had scarcely been invented, and thermionic vacuum tubes were the rage.

Mr. Heilig, we salute you. •

In an article titled "2001: Computers, Living Inside Your PC", in *Discover* magazine, November 1988, Alan Kay predicts the next decade of computing. He specified simulation ("most corporate executives, although they've never really thought about it, would much prefer to have a model of their company that they can actually pit against different situations") and head-mounted display ("change from being on the outside of the computer to being oin the inside"). These are the components of cyberspace.

The following positive scenario explores the impact of cyberspace on our daily existence in the year 1999.

HOW MUCH IT WILL COST

(*Note on dollar amounts: they are predictions. If you are pessimistic, double them. Or increase by a factor of ten, and assume cyberspaces are provided in rental hubs for $50/hour.*)

Let's assume that an adequate hardware suite exists:

For $6000, a person can buy a cyberspace graphics board that will display up to 2000 shaded polygons 20 times per second, in two stereoscopic images. This board permits easy conversion between display formats (RGB, NTSC, HDTV), maintains consistency of color and stereopsis, and manages graphics related chores. The board also has sufficient floating-point and symbolic computational power to perform matrix multiplication, pattern-matching, and parameterization of space. For concreteness, imagine this board to be based on two 80860s and a parallel bank of Transputers.

For $2000, we can get a head-mounted display, containing two high-resolution display screens on a parabolic sheet. The housing is sturdy, comfortable, well-balanced and quite small, not unlike thick glasses. Head tracking is built in, as is stereo sound and a voice microphone. Overlay headmounts, optical fiber remote feeds, and other optical arrangements are optional.

For $2000, we can get an interface suite consisting of a magic wand, a force-feedback joystick, and a low-frequency body tracker. The wand emits a virtual ray which permits us to point at virtual objects, to fly in the direction we are pointing, to attach to points on objects and toggle our perspective, and to grasp, move and rotate objects at the end of the ray. The joystick lets us steer a virtual car or airplane, feeling bumps, collisions and forces. The body tracker provides an image of our body in the virtual environment, our movements can be mapped onto virtual objects, into the command interface via a gesture language, and into a set of virtual effectors which we regard as tools. All input devices are seamlessly integrated, sturdy and reliable.

For an additional investment, we can get special equipment to enhance our virtual realities and our experience within them. Room digitizers, tactile-feedback units, exercise bikes, interactive toys, and photorealistic display are all available to enrich the virtual world.The hardware industry is booming. Folks are buying headmounts to watch conventional TV. (There is talk that the TV industry will update to broadcasting dual stereo images.) Folks are buying graphics boards to watch digital movies. (There is talk that the TV industry will update to digital broadcasting.) Folks are buying peripherals to play in worlds. (There is talk that the TV industry will update to interactive broadcasting.) And folks are buying the entire hardware suite to experience cyberspace.

The software industry is booming. Folks are buying

CYBER

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The Shell, The Image

simulated worlds, artificial realities. Some are non-interactive, designed experiences called digital movies. The digital movie business is a big consumer of Cyberspace Design Tools, software that helps them to craft a digital movie. These tools have evolved from image processing, graphics animation, and computer-aided design.

APPLICATIONS:
Some interactive cyberspace experiences are focused on limited domains:
• The Exercise CyberCycle (already in existence at Autodesk), for example, offers a scenic digital movie which varies only according to how fast you're pedaling.

• CyberGolf permits you to walk around the links of your choice, and is integrated with a stationary physical ball which you hit in real space, and a treadmill.

• WaterWorld is an undersea digitized hub experience just installed at Marriott's Under Marine World Out Of Africa USA. The new tank is teeming with fish and exotica. The walls of the tank are Cyberports, each connected with a personal viewing chair and a headmount. Projected through the Cyberport is a digitized view of real underwater life. (Crowds are a thing of the past; folks believe that Cyberexperience is both real and comfortable.) Each paying customer has a personal, unobstructed, cozy view. There are 400 different Cyberports. Customers can switch to and open viewports electronically. For a price, the customer can interact with the real life, since the Cyberport on the wall of the tank has a food dispenser and a water jet.

SPACE 99

And Now The Meat

Dr. William Bricken

for weather conditions.

• The Architectural Engineer is designing and constructing buildings in cyberspace. He explores his constructions, testing for code violations and modifying them on the spot. He evaluates the aesthetic feel of his construction, and repositions windows and doors to enhance views and flows.

• The Mechanical Engineer is interested in testing assemblages, virtual machines. Which portions of the engine block will need reinforcement, how would the horsepower change if these cylinders were slightly smaller, what temperature should we expect at the manifold? Cyberspace would not only provide the

conference rooms, areas that are identical in furnishiings and shape, but right down the hall to everyone. At conference time, executives take their chairs, don their headmounts, and greet the images of their conterparts as if they were all in the same room. A communal interface translates gestures into a common international standard, reducing differences in cultural cues. Facial expressions indicating pleasure, surprise, anger and enthusiasm are displayed explicitly. Business in the virtrual conference is efficient and clear, and local privacy is available at the flip of a switch.

• On the World Stock Market, traders step efficiently among the 24-hour exchanges which cover the

Some applications of cyberpace emphasize massive databases:
• The Tornado database, as an example, contains the path of each cubic meter of air from an actual tornado. You can study it, ride it, convert it into velocity gradients, and sprinkle it with cars and houses.

• The Mars database and the Moon database let you stroll in other worlds. The gravity in each world is realistic. For undersea adventure, gravity is negative, objects float upwards. By holding one's perspective steady, the available processors shift their computational burden from real-time tracking to image refinement. Staring at an object for a few seconds renders it at photorealistic quality.

• The World database contains images of every meter of the Earth's surface. You can fly over it, stop and rest in Ankara, or try to find yourself in the image.

• The Body database is a 3D human body, thinly sliced and digitized at the cellular level. It has boundary integrity, so that you can travel in the bloodstream under pressure.

• The Library Of Congress database is the territory of scholars. The search of literature is still an art, and only Librarians can use the esoteric tools that convert words to images. Some say that it leads to insanity, others to enlighhtenment.

Some applications of cyberspace are extremely practical:
• The Air Traffic Controller lives in a cyberspace of radar tracking information. He stands as a sentinel to the airfield, half a mile in the sky. He boards the virtual information that is the plane, and rides on its wing through the landing, checking visually for other aircraft and

computational substrate for realistic modeling, it would provide the viewing and interaction tools required to convey the meaning of the computations visually and intuitively to the engineer.

• The Space Scientist sits comfortably on the ground, manipulating a remote robot in orbit. His movements and gestures are mimicked by his telerobotic counterpart in the physically hostile environment. And whatever happens to the robot is conveyed and experienced, risk-free, by the human operator. Delicate adjustments to the nuclear reactor in the void of space are accomplished directly; pressing interruptions on Earth are addressed merely by removing the headmount.

• The Business Executive has virtually eliminated air travel from the busy agenda. Offices in New York and Paris and Tokyo and San Francisco each have virtual

globe. The Japan headmount puts a broker on the floor of the Japanese Exchange; the London headmount permits travel across the world in an instant.

Some uses of cyberspace are deeply humane:
• The Family Gathering places relatives and friends a phone call away. Not only voice and image, but full interaction. Virtual games, virtual parties, virtual reunions. Yes, Aunt Sally's image may look a little flat, and very thin from the side, but it is Aunt Sally, in real time. We cannot share the same plate of turkey, but we can share our mutual enjoyment. Pass the Magic Wand, please.

• Virtual limbs provide the disabled with experiences unobtainable in physical reality. Ah, the feeling of unencumbered movement, of enhanced abilities, of full functionality.

• The Psychoanalyst finds cyberspace to be an invaluable tool.

Depression, the most common cognitive disturbance, is expressed as powerlessness, as a helpless feeling. Virtual reality empowers the depressed, providing unlimited abilities to create and construct, to experiment with positive action. Psychodrama can be acted out on a neutral, plastic stage. Trauma can be reconstructed and faced directly. Phobias can be desensitized in a safe and controllable manner. Cyberspace biofeedback provides direct cues to modify behavior; the PostureReminder renders a clear bright world when the body is erect, and degrades through shades of grey as the body slumps. Virtual psychoanalysis provides tools for identification and modeling of problems, for experience with options, for safe feedback and for success.
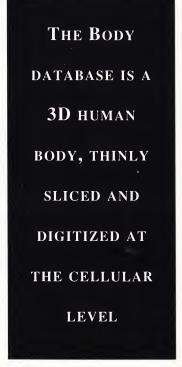
• The Personal Interaction Virtual Reality permits cyberspace to be used as an empathy mapper. Here is the way I see it, I have constructed my model of our mutual situation. Will you swap places with me, look at it through my eyes? And I would like to see how you see it. Why don't we meld our virtual models, join our separate perspectives into one? Look, we agree on most of the context, but over here, in our image of the children, we differ. What needs to change so that we see it the same?

• The Tranquil Ground is a cyberspace designed for relaxation and meditation. Beautiful pastel shades murmur across the ferns, sunlight and moonlight intermix in the babbling brook. I feel like melting, I am melting, joining with the undulation, becoming one with the waves, falling into the Void.

• The MetaMystic database is actually a cellular automata program, refined to look like ecstatic thought in three dimensions. Meditative participants can choose to be On or Off.

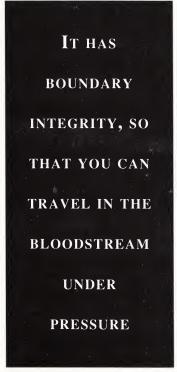Some interactive cyberspace experiences are dynamic and creative:
• The Virtual Decorator customizes your home with wallpaper selections and furniture arrangements. For a modest fee, you can have your home digitized. Then come down to the friendly, home-decorating hub, and step into Cyburbia and into your own virtual living room at the same time. Ever wonder how that modern painting would look over your mantlepiece? Thinking about moving that heavy couch all the way into the den? Don't move it until you've seen it moved.

Let's try the striped wallpaper and green carpet in the den. No, let's change that to the polka-dot wallpaper. Come on down! All qualified buyers can use the Cyburbia hub for free.

• At the Virtual Concert, every seat is the best in the house. Design the ideal auditorium, craft the sonic space of your choice. Send the sound into impossible cavities, into the Grand Canyon, and wait for the echo. Want more drums? Then move the drummer closer. Or switch eyes with the guitar player and give the air guitar concert yourself. Or be the guitar being strummed, the feeling of resonance is indescribable. Get into beat, be the acoustic wave, shape the auditorium to fit your harmonic. Color the sound and watch the music unfold.

• The Clothiers Mirror lets you watch your own image. Ever wonder what that hat looks like from behind? What if I changed the color of these shoes? Would I look better if I lost ten pounds? Gee, I love my magic CyberSelf.

• The Virtual TravelAgent has digitized versions of wherever you might fancy for your vacation. No more doubt about what you will see or where you will stay. Explore the exotic world of Tahiti, first virtually, and if you like it, in reality. Or take the deluxe, two-day, one-night, all-expense-paid trip of a lifetime to the North Pole. Avoid the crowds, avoid the cold, avoid the travel. Just take home our dozen laserdisks of the Polar Experience, take the phone off the hook, and prepare to play with the polar bears.

• The Air Travel Companion is a cyberspace port attached to the remote control telescope under the plane. Why watch a movie when you can watch the details of reality roll by?

• For the kids, we have CyberDreams, featuring the Purple Crayon. "Ho-hum, another dullish day. I need a moon." The Purple Crayon can draw in cyberspace. A circle is sketched by a wave of an arm, idealized (made perfectly circular) by a punctuated dot of the finger, and spun into three dimensiuons by a flick of the wrist. The moon appears. "Brighter, please, moon. And may I have my worlds from yesterday, and the new Taj Mahal, and..."

• The Virtual School redefines learning. Students build their knowledge, then explore their understanding. Knowledge is redefined in terms of formal models, curriculum development becomes identified with knowledge engineering. What was ancient Greece

THE BODY DATABASE IS A 3D HUMAN BODY, THINLY SLICED AND DIGITIZED AT THE CELLULAR LEVEL

really like? We may never know, but we can pretend, and we can do a whole lot better than those dusty old words. Can't afford the chemicals for that exotic reaction? Virtual Chemistry lets you swim among the molecules of your choice. What do those equations mean? Come find out, slide down the exiting exponential function, poke the triangle to prove that it is stable. Students participate as raindrops in the Earth's water cycle, to gain ecosystem credits. They peel away strata to study geology. Teachers are embedded in each world. Students experience learning directly. They graze on hypertext. They read only pictures.

• The Virtual Artist has at his command all the tools of digital painting, millions of shades and hues, arbitrary resolution and detail, digital realism and Boolean abstraction. Once specified in cyberspace, machines can duplicate a piece of electronic art indefinitely. Aesthetics for the masses.

• Virtual Sports provide team games of an entirely new flavor. Tennis handicaps might be expressed as different gravitational constants for each player. A cross between the hand-eye coordination of videogames and the strategic skills of chess will define new competitive challenges. Body tracking will allow full physical activity without physical contact. Rules can be enforced by the virtual reality rather than by the players. Playing fields will be available to all.

Of course, the cyberspace videogame market will capture the hearts and monitors of every home with children. The cyberspace Personal Fantasy will capture the hearts of every home with adults.

And in the not too distant future, neuropsychologists will begin to connect the measurement of cortical activity with cyberspace construction commands. MindMirror will evolve, the first cyberspaces constructed by mental activity alone. Open-mindedness takes on an entirely new meaning.

CONSTRUCTION TOOLS

Not everyone will want to construct realities. It is, after all, very exacting and time-consuming to account for everything. For the most part, specialists will build ready-made realities, emphasizing utility, or adventure, or challenge, or education, or fun, or whatever the marketplace will require.

The makers of realities, passive and interactive, specialized and general, will require digital tools that are particularly well-suited for each of their specific construction tasks. Subject experts and cyberspace programmers will work in teams to design and construct realities that are easily modified along a small number of domain-

specific parameters, and robustly invariant along most other dimensions. These folks will be the applications developers of cyberspace.

Applications developers will rely on a singular modular suite of tightly integrated programs. The programs will permit design, construction and processing of digital databases that can be interpreted as 2- or 3-dimensional scenes.

In the general case, the CyberProgrammer will want complete control over the fabric of space, and over the behavior of objects within space. A bridge could break under a load, the load could vary with rush hour. In general, the Cyberspace Construction Kit must be a complete modeling kit for the real world and for parametrized versions of reality.

MORE THAN REALITY?

We describe innovations in terms of what they replace. Only after decades do we come to understand the pervasive impact of new technologies on our culture. The automobile was first the horseless carriage. It replaced the carriage, looked like a carriage, and moved at the speed of a horse. Decades later, the automobile has transformed our landscapes, the pace of our travels, and our concept of space. The television replaced the radio. Television programs were first radio programs with pictures. Decades later, the television has transformed our evenings, the pace of our senses, and our concepts of news and entertainment.

The computer is first a symbol

processor. Although decades have barely passed, it is reshaping our models of information and information processing. But the computer itself has yet to be understood for what it is in itself; we still view it from the impoverished model of what it replaces. McLuhan said that computers extend our central nervous system. But our CNS is not a symbol processor, it is a reality generator. The essence of the computer revolution is yet to come; computers are essentially generators of realities. Cyberspace, virtual reality, embodies this fundamental nature of computers, the creation of a diversity of realities. We have seen the shell, the narrowness of sequential computation, in the processing of one-dimensional strings of symbols. Zeros and Ones. We have seen the image, the flatness of pixel computation, in the desktop metaphor. Icons and Mouseclicks. Now we can prepare to see the meat, the sensory surround of situated computation, in cyberspace. Inclusion and Unconstrained Realities. •

Randal Walser

as selected and edited by
R. U. Sirius

SPACE

& The Art Of The Cyberspace Playhouse

THE WORLDS THEMSELVES
Cyberspace is a medium that gives people the feeling they have been transported, bodily, from the ordinary physical world to worlds purely of imagination. Although artists can use any medium to evoke imagi-nary worlds, cyber-space carries the worlds them-selves.

No one can know what will happen from one moment to the next in a cyberspace, not even the spacemaker. Every moment gives every participant an opportunity to create the next event. Whereas film is used to show a reality to an audience, cyberspace is used to give a virtual body, and a role, to everyone in the audience. Print and radio tell. Stage and film show. Cyberspace embodies.

NEW PARADIGM
Cyberspace is a medium that is emerging out of a new way of thinking about computers and their relationship to human experience. Under the old way, computers were regarded as tools for the mind, where the mind was regarded as a disembodied intellect. Under the new paradigm, computers are regarded as engines for new worlds of experience, and the body is regarded as inseparable from the mind.

This new perspective on human/computer interaction is due in part to recent advances in computer graphics and simulation, and in part to reductions in the cost of key user interface technologies. The new perspective was precipitated, though, by the growing realization in the scientific community that the basis of rationality is not in the world, as had been supposed, but in the human body. The essence of this new view is expressed eloquently in the title of Mark Johnson's book, *The Body in the Mind*. In the introduction, Johnson lays out the fundamental tenets of the emerging paradigm, as follows:

We human beings have bodies. We are "RATIONAL animals," but we are also rational ANIMALS," which means that our rationality is embodied. The centrality of human em-bodiment directly influences what and how things can be meaningful for us, the ways in which these meanings can be developed and articulated, the ways we are able to comprehend and reason about our experience, and the actions we take. Our reality is shaped by the patterns of our bodily movement, the contours of our spatial and temporal orientation, and the forms of our interaction with objects. It is never merely a matter of abstract conceptualizations and propositional judgments.

Whereas Jaron Lanier would use "virtual reality" to refer both to a virtual space and experiences within the space, I distinguish a special kind of virtual space, a cyberspace, which promotes experiences involving the whole body. The distinction might seem obtuse, at first thought, but it is no different in principle from the distinction between film, say, and the apparent realities expressed through film (i.e., between "filmic space," on the one hand, and "virtualities" communicated via film on the other).

CYBERSPACE DECK
The infrastructure of cyberspace is bulky and expensive enough to warrant a physical gathering place, a new kind of social center, called a cyberspace playhouse, where people go to play roles in simulations.

In William Gibson's stories, cyberspace "cowboys" enter cyberspace by "jacking in" to an instrument called a "deck." The exact nature of a deck is never discussed, though it is clearly some sort of

MAKERS

gateway through which people are transported to cyberspace. I use the term DECK in the same sense, to refer to a physical space containing an array of instruments which enable a player to act within, and feel a part of, a virtual space.

Specifically, a cyberspace deck has seven components:
1. a CYBERSPACE ENGINE to generate a simulated world and mediate the player's interaction with it,
2. a CONTROL SPACE — a box of physical space — where the player's movements are tracked,
3. SENSORS to monitor the player's actions and body functions,
4. EFFECTORS to produce certain physical effects and stimulate the player's senses,
5. PROPS to give the player solid analogs of virtual objects and vehicles,
6. a NETWORK INTERFACE to admit other players to the simulated world, and
7. an ENCLOSURE (or some sort of physical framework) to hold all the components.

Many decks will have just one prop, like a stationary bicycle, a railing, or a chair, and some decks will have no props at all.

The sole purpose of cyberspace technology is to trick the human senses and sensibilities, to help people buy into and sustain an illusion. Head-mounted visual displays are important because they flood the human sense of sight with illusory images, making it much easier for most people to suspend their disbelief. Nonetheless, head-mounted displays are merely one means among many, including out-the-window visual displays, three dimensional audio displays, motion platforms, force-feedback devices, credible simulation worlds, dramatic tension, high stakes, engaging stories, and social reinforcement. The upshot is that there is no surefire way to put people into cyberspace: ultimately the job is an artistic one

ART OF SPACEMAKING

Whereas the playwright and the filmmaker both try to communicate the idea of an experience, the spacemaker tries to communicate the experience itself. The filmmaker addresses the mind. The spacemaker addresses the body, and thereby the mind.

The spacemaker can never hope to communicate a particular reality, but only to set up opportunities for certain kinds of realities to emerge. The filmmaker says "Look, I'll show you." The spacemaker says "Here, I'll help you discover." •

There is a rapidly growing collection of "online services" and "information utilities" providing tools for people to expand their interaction via computer. Until recently, however, none of them have ever offered users an opportunity to explore "virtual realities" of any sort. GEnie — an online service from General Electric, in concert with Simutronics — a software development company, has taken a first fledgeling step toward exploration of this new technology.

The new service is called "Imagine Nation." Imagine Nation, or I N for short, provides a "real-time chat" function similar to the "CB simulators" found on services like CompuServe, GEnie, or Delphi, but within the context of a "virtual world."

Rather than choosing "channels" in order to send interactive messages, I N users travel between "rooms," each of which has a specific description and attributes. There are a wide variety of rooms, ranging from cities, hotels, ski resorts, island paradises, "dive" bars. The descriptions are well written, intended to evoke memories of similar locales in the user.

Locations include:

CAYMAN ISLANDS:
What a beach! This must be the prototype of all beaches. An expanse of pure white sand goes off as far as the eye can see through the tropical glare. Behind the airport is a grove of palms, and before you the cool, deep blue ocean beckons you. You also see a sand castle, a small sign, some beach chairs and a flock of sea birds.
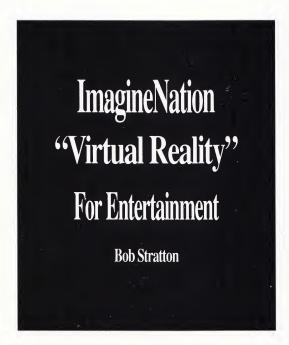OBVIOUS EXITS: none.

SHANGRI-LA
You're inside the Shangri La bar-and-dive. Inexplicably, this place has a certain charm to it. The furnishings here consist of a few creaky ceiling fans spinning very slowly, a jukebox that has definitely seen better wars... err, days (years, actually), a huge carved bar (probably termites) with cracked mirrors behind it, a potted tree, a neon sign, and most notably a floor covered with sawdust. You also see a granite sculpture and the fireplace.
OBVIOUS EXITS: out.

RAINBOW
You are standing at the top of a grassy slope covered in wild-flowers, touched with dew. Out of the early morning mist rises a rainbow, like a bridge to the land of leprechauns. There is a small bronze plaque mounted on a wooden post.
OBVIOUS EXITS: none.

Users of the system choose pseudonyms or "handles" like in the other real-time chat systems, but the similarity stops there. Users also get to create a description of themselves, which others will "see" when they use the EXAMINE <person> or LOOK AT <person> commands.

After creating a description, the user may choose to create "objects" for their use. The name of an object consists of an article, adjective and noun, so there's a great deal of flexibility. An object may be clothing, food, a drink, a ball (to bounce), a lucky charm, a communications device (like a walkie-talkie), a book, a musical instrument, a container (like a backpack), or just a prop. Some people have the ability to create certain objects on demand, (system operators can mix "drinks" and make "birthday cakes") but most users must travel to a location with a special machine that makes objects.

There are several ways to travel within I N. The two most common methods are to use compass directions, like "NORTH", "SOUTH", "EAST" and "WEST"; or to "POOF." POOFing will take the user directly to a location if they know the number, or if POOF <username> is typed, the user will be transported to the location of the person they've selected.

The real magic of I N is in its "verb" commands, which make the interaction between users rather "lifelike". The following are some examples of I N verbs and the results they produce, assuming that "Strat" is the user entering the commands, and "Fred" is the object of the actions:

HIT Fred: Fred will see "Strat hits you."

HUG Fred: Fred will see "Strat hugs you."

FIVE Fred: Fred will see "Strat jumps in the air and gives you a high five!"

THWAP Fred: Fred will see "Strat takes out his thwap gun, takes careful aim... and *THWAPS* you!

V8: Fred will see "Strat slaps himself on the forehead with his palm."

LOL: Fred will see "Strat is laughing out loud!"

ROTF: Fred will see "Strat is rolling on the floor laughing!"

There are many verbs, including, KISS, TICKLE, SNUGGLE, SLAP, BONK (with a frying pan), PRIVATE (moves you and a friend to a private hotel room), DUCK, EAT, and DRINK.

The system looks at your messages, and displays them differently depending on your punctuation. Here are some examples of messages:

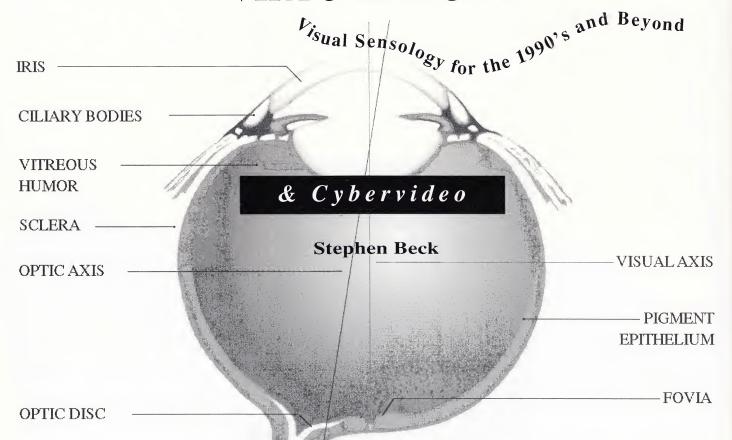| What I enter:	Other people see:
"Hello"	Strat says, "Hello"
"Hello!"	Strat exclaims, "Hello!"
"How are you?"	Strat asks, "How are you?"

Within the framework of I N, there are quite a few regularly scheduled activities. There are discussions for singles, chats about mens' issues, games, and various other group functions, each located in some "spot" within I N. Many of the discussions take place in the "Shangri-La Bar", with system administrators mixing drinks for everyone.

Authors Note: This system is a lot of fun! I encourage readers to try it out, and drop me a line with your impressions. I can be reached on the following networks:

UUCP: strat@cup.portal.com, strat@well.sf.ca.us GEnie: R.STRATTON32, Delphi: RJSIII, Prodigy: WHMD84A

Disclaimer: The above is solely the opinion of the author; no relationship to General Electric or Simutronics is expressed or implied. •

ImagineNation

"Virtual Reality"

For Entertainment

Bob Stratton

VIRTUAL LIGHT

Visual Sensology for the 1990's and Beyond

IRIS

CILIARY BODIES

VITREOUS HUMOR

SCLERA

OPTIC AXIS

OPTIC DISC

& Cybervideo

Stephen Beck

VISUAL AXIS

PIGMENT EPITHELIUM

FOVIA

Virtual Light is defined as "the sensation in the eyes of light, visual images, or other visual language elements produced directly, without the use of actual light photons emitted from a CRT, LCD, or other optical image element."

VIRTUAL LIGHT

Imagine watching a video-like image with your eyes closed. Or playing a computer game *without* a video screen — a game superimposed over backgrounds you see with your eyes open. Or a device which might provide some form of electronic vision to sight-impaired persons.

These and more may be possible with the new technology of Virtual Light. Virtual Light is a new form of visual interface to the human mind. Ultimately it may supplant the rudimentary forms of Virtual Reality now being forged by pioneers in the field.

Virtual reality systems being proffered today allude to a completely virtual representation of physical space. Yet to produce a stereo image, they still depend on a very limited video display technology. Real photons of light energy must be formed on a matrix display device such as a miniature cathode ray tube (CRT) or liquid crystal display matrix (LCD) before being focused with optical elements onto the retina of the eye.

While the eye is a relatively high bandwidth sensory channel, VR technology is limited by the current state of television display technology. Dependence on these imaging devices is going to be the primary constraint in the evolution of Virtual Reality. A crude low resolution image near the eye is *not* going to satisfy our cognitive criteria for reality, virtual or otherwise. Ultimately, I believe that the

technology as we see it proliferating will prove to be a blind gut. The headgear and screen will appear too cumbrous and artificial. True Virtual Reality will circumvent the physical sense organs all-together and have its site of action directly in the brain.

The Virtual Light™ instrumentation I developed proves that it is possible to produce optical sensations directly in the eye without the use of photons. This means that we can foresee Virtual Reality devices which do not require television display technologies. Rather we can access a much higher bandwidth sensation information channel *directly* to the brain. Best of all, we can accomplish this non-invasively — without resorting to surgical implants.

One of my inventions, the *Phosphotron*, embodies certain specific components of virtual light to cause a viewer wearing the goggles to see specific, repeatable optical phenomena of lights, flashing patterns, and microtextures.

The word phosphotron is derived from the Greek word Phosphos, which means *light*, and Electron, which means *amber*, but is now the root word for electronic or "charged" phenomena. Thus the Phosphotron causes sensations of light by direct use of electrons, either conductively or inductively. Neural signals into the optic nerve are triggered which the brain interprets as light. This light — which I call Virtual Light — has directionality, temporality, color, form and shape.

Virtual light can be modulated with information.

This light can be seen repeatably by 99% of my test samples to date, including some individuals afflicted with certain forms of sight impairment. These few but fascinating cases have reported "seeing" the electronically induced phosphenes under experimental conditions.

Directionality, rates and tempos of flashing, and breakpoints into microtextures all correlate to a high degree among sample subjects.

In addition to electronic channel coupling I am also developing magnetic coupling sensors which appear to operate by way of induction.

My goal was to achieve high information bandwidth by the use of epidermal electrodes which would not require surgical implantation or subcutaneous insertion.

While some researchers have achieved "brain flashing" through electrodes implanted directly into the visual cortex, I consider this to be primarily of experimental interest. Virtual Light Technology will make the experience universally available and hazard free.

A practical Virtual Light product should be as easy to wear as a pair of sunglasses. Easy to put on. Easy to take off. Comfortable to wear. "Designer." Sexy.

PHYSIOLOGY OF VIRTUAL LIGHT

A general overview of the eye reveals that the eye is really more of a projection or extension of the brain than a separate sensory organ. Human vision is a very highly developed sense — in most people, the dominant sense. The eyes' pre-eminence must surely rest on the fact that the eye is more brain than pure sense organ like touch or taste.

The inner structure of the eye consists of several layers of cells: Rods and cones are the basic photoreceptors. Signals from the rods and cones are multiplexed and processed by groups of synapses, centripital cells, bipolar cells, amacrine cells, and glia, which appear to be structural elements. Signals pass on to the optic nerve from these cells with a 1000:1 concentration in information content. The retina also receives feedback from the brain via other lines from the optic nerve. This is a very significant effect, and leads us to conceive of the eye as an "intelligent organ."

We know that the brain sends focusing signals to the muscles controlling the eye, corneal lens, and frontal mechanical elements. But the brain also sends signal processing parameters to the retinal cells to aid in performing the visual task of the moment, be it tracking fast moving images, or focusing on more detail, color or luminosity.

In fact, all the proposed High Definition Television Systems (HDTV) make extensive use of these *adaptive vision* features of human sight. For example, when a scene contains fast moving action, the HDTV system does not transmit much detail information because the human eye does not see detail in a fast moving image. Conversely, a relatively still or static image will have much more detailed information transmitted. Fortunately, these two types of image elements — rapid motion and high detail — can be traded off within the same channel since neither is required at the same time.
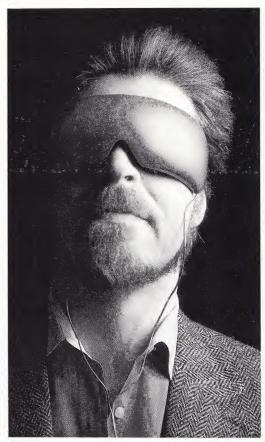
APPLICATIONS OF VIRTUAL LIGHT

I can envision many and various applications. Entertainment and Education are the basic rubrics, of course. A few stand out as avenues to explore:

1) Aid to visually impaired persons:
With certain forms of visual impairment, subjects have reported fair to excellent sensation of virtual light phenomena when stimulated by the Phosphotron.

Experimental work has been limited but the results were striking enough to warrant further investigation. In 1987 I worked with a patient, Jack Coughlin, who graciously consented to taping the two hour session held at Beck-Tech Laboratories in Berkeley. I have extracted a few of his quotes from the transcript to suggest just how powerful this technology could be in visual reëducation.

STEPHEN BECK

Jack Coughlin: "I was originally injured in an accident in 1945 and had a slit in both retinas and it was untreatable at that time. Over a period of about 35 years the retina deteriorated, rolled up actually, and in 1984 I went to bed one evening and woke up and was totally blind the next day."

A few minutes into the session: "I'm getting activity! I don't know why but boy, I'm getting activity. I'll tell you what it is like — dancing little blazes of very low degree of light... it's as though there's activation of something which is normally not activated in me."

Later: "I want to tell you that there is utterly no question... see I have been on it long enough now to where the sensations are becoming repetitive. It is near what I went through when I was relearning how to see light. The first step is beginning to see shape and edge, the very same process. The difference with this one is how you train yourself in 7 or 8 days where it takes 7 or 8 months to do it the other way... Whatever is happening, this regenerates the entire system."

Towards end of session: "There's no question about this now, Steve. I'll tell you, it's had an effect. I'll give you a certified statement that my light perception now is probably 25% greater than before we did it. This is a stimulator! I'm trying to remember what a person is supposed to see on the face of another. For the first time in my life at this distance I can see where your eyes are.

2) Superimposed Visual Displays:
Under the proper lighting conditions virtual light effects are actually superimposed by the viewer to appear visually combined with optically originated images seen with open eyes.

Critical process monitoring, such as in nuclear power plants, surgical patient monitoring, or in the manufacturing of hazardous materials, could benefit from a type of visual display which the worker could *not* block out of sight. Warnings or alarms could be flashed to technicians with virtual light devices such as the phosphotron .

3) Imagination & Creativity Enhancers
Perhaps the most interesting and most easily obtained benefits from Virtual Light are in the area of cultivating the imagination and creativity. As entertainment and play have become progressively more passive, the faculty of imagination has atrophied. Visionary geniuses like Nikola Tesla have always exhibited to a high degree this faculty of internal imaging.

Creative people report that the ability to visualize a complete picture is the first and most important step in creating a new object, design, or concept. Tesla claimed that he could completely see inside his mind every detail of his AC motors and generators. When his laboratory burned down in a disastrous fire, destroying all of his documents and notes, he was able in short time to reconstruct them all from memory.

Sudden flashes of illumination or understanding are commonly spoken of as "a light bulb going off in one's head." Pop iconography supports this notion also: cartoons represent getting an idea or inspiration by the symbol of a light bulb inside or above the head. This "Eureka" or "aha!" experience is a mysterious and fragile phenomenon. One thing we know, however, is that it is enhanced through the power of internal visualization.

Masters of meditation techniques in a variety of "metascientific" traditions including Buddhism, Tantrism, and Western Magick tell us that by practicing inner visualization it is possible to refine and enlarge our creative powers.

DELETERIOUS EFFECTS OF EXTERNAL VISUAL TECHNOLOGY ON THE IMAGINATION
If asked what the most effective form of visual communications technology is, my answer (only half perversely) would be "radio!"

Radio is the highest form of visual medium because it paints pictures inside your mind with your own imagination. These pictures are far more detailed and rich than any external image.

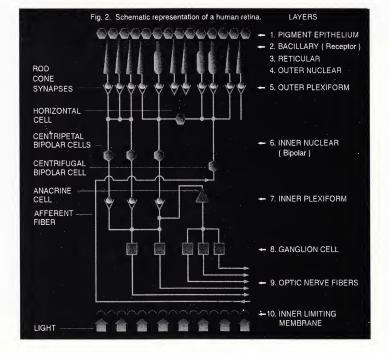As society has become more visually attuned to external and artificial visual realities such as television and computer screens, we have impoverished out own internal wellsprings of imagination.
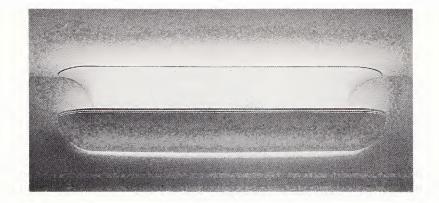
Children today watch so many hours of television and computer screens that very little time is devoted to developing an active imagination.

Even Virtual Reality systems — which simply use television technology in a closed loop — limit interactivity and force an external visual reality upon the viewer.

We need to develop new visual technologies to rekindle the Imaginal Eye. This power, which has gone largely dormant in our civilization, could be the saving of it.

It is my hope and conviction that virtual light technology offers one possible method to refocus our visions inside ourselves, to the mind's eye, the great video screen or proscenium inside the brain where *all* the action is googol-bit, 4-D, holographic and synaesthetic. •
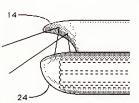
Fig. 2. Schematic representation of a human retina.

LAYERS
1. PIGMENT EPITHELIUM
2. BACILLARY (Receptor)
3. RETICULAR
4. OUTER NUCLEAR
5. OUTER PLEXIFORM
6. INNER NUCLEAR (Bipolar)
7. INNER PLEXIFORM
8. GANGLION CELL
9. OPTIC NERVE FIBERS
10. INNER LIMITING MEMBRANE

ROD CONE SYNAPSES
HORIZONTAL CELL
CENTRIPETAL BIPOLAR CELLS
CENTRIFUGAL BIPOLAR CELL
ANACRINE CELL
AFFERENT FIBER
LIGHT

Hyper*webs*

by Wes Thomas

CYBERFUSION

Virtual Reality is the next hot medium. Critical technologies are about to merge to make this new media accessible, affordable, and exciting. VR will combine with multimedia (including desktop video and animation), artificial intelligence, neural networks, video conferencing, and other technologies, creating unpredictable cyberfusion.

"Ultimately," said Terence McKenna in one of his crazed psychedelic mushroom visions, "The human imagination will become externalized... anything we imagine will simply *come to be...*"

Here's one of my favorite imaginative ideas: Vernor Vinge's book *True Names* describes a world in which people create consensus virtual realities, their brains linked up by fiber optics, with massive storage at each home for downloading the latest hot reality.

Let's look at the checklist to see where we're at:

CONSUMER VR SYSTEMS:

Right now it requires two Silicon Graphics Personal Iris computers — one for each eye — plus other electronics, totalling about $100,000. What about VR on personal computers? The problem: personal computers are too slow to give you a sense of real-time movement —

unless you're happy with very simple objects.

Dial-a-World. Ex-AutoDesk VR researchers Eric Gullichsen and Patrice Gelband are developing software tools to get around this. Their Sense8 Corporation (1001 Bridgeway, #477, Sausalito CA, 94965) is developing WorldTool, which will allow programmers to develop low-cost virtual worlds on existing personal computers.

Eric says the best machine for VR is the high-speed $4000 Sun SPARCStation. I'm also impressed with the new Amiga 3000, which has six custom chips for graphics, video, sound, and other functions, plus high speed (32 bit) connections with other systems. And the Amiga is designed for real-time multimedia productions. Now we can integrate animation and video with VR.

There's also a rumor that an unnamed company is developing the equivalent of two Silicon Graphics computers on cards that plug into the Mac to speed it up.

Astral travel, anyone? Virtual Reality Laboratories of San Luis Obispo, CA is creating *Vista*, a program for the Amiga that will let you explore the solar system (they have detailed data from the Mars Orbiter, for example). They're also developing *Fractal Flights*, in which you can fly over just about any

terrain on the earth. Each view will take about five minutes to render (paint), compared to three hours with a PC AT (you can also store two minutes of flight animation and play it back in real-time).

By the way, NASA has a similar program, running on large computers. Using satellite data, you can fly around and look at various areas of the earth, Mars, and the Uranus moon Miranda from any height. The Defense Advanced Research Projects Agency (DARPA) has been developing remote viewing VR systems for years. Using supercomputers, pilots can covertly guide "semiautonomous vehicles" (such as drone spy planes) on surveillance missions. The pilots control them by flying in virtual worlds.

A reliable source tells me that US Navy submarines are also guided through underwater valleys this way (as opposed to the primitive mental imaging technique used by the Commander of the *Red October* submarine in the movie.) Virtual Reality Labs is designing a massively parallel board for the Amiga that will allow this kind of remote viewing to happen in real-time. A VR system based on this board and Amiga 3000 would cost around $20,000 (compared to $100,000 for a Silicon Graphics system).

VRL also has a neat program for the Amiga called Distant Suns that lets you see what the sky looks like from any year back to 8000 B.C.

Virtual games. We'll also see consumer VR systems on the market this year. Mattel is looking into adding low-cost eyeglass displays, body suits, and other devices to its Power Glove (which is based on VPL's Data Glove). Broderbund is developing a 3D version of U-Force that will let you move around inside a Nintendo game. Other companies are looking at using the Power Glove to remotely control personal computers.

Tech 2000. You can experience a virtual environment at the Tech 2000 gallery in Washington (800 K St. NW, 202-462-4072), where you'll be able to play virtual drums and virtual hockey. Tech 2000 also has 70 state-of-the-art interactive multimedia exhibits to explore. Director Nicholas Givotovsky is exploring ways to create "real-time virtual representations of information topography" to create better ways to circumnavigate the info world.

The Tech 2000 virtual environments were created by Toronto-based Vivid Effects, which is also developing virtual environments for coin-op video games and booths in malls where you can make your own music video. These environments use a video camera plus a computer programmed to "see" where your hands are located and activate

animations, instruments, or other devices when you "hit" a virtual drum with a wave of the hand, for instance.

Myron Krueger, whose book *Artificial Reality* (1972) inspired this system, is taking his "Video Place" concept a step further. He's working on ways to let you draw in space (the thumb and forefinger operate control points on a spline curve) or operate a computer. The system uses a low-cost video camera connected to a Macintosh-based system that recognizes finger positions and movements.

The ultimate consumer VR products are quietly under development in Japan. See this column, next issue.

BRAIN LINK:

We're on the verge of a new generation of mind machines that use animated, synthesized VR displays of mind activity. David Warner of Loma Linda Hospital is using a DataGlove to allow paralyzed patients to communicate with nurses. He's also developing the "autocerebroscope," the ultimage mind machine that he believes will be able to show emotions and (eventually) even thoughts. The trick: he uses dynamic (chaos attractor) displays and VR rather than conventional EEG displays. Biofeedback guru Dr. Tom Budzinsky of St. Luke's Hospital in Bellevue WA is also researching VR systems for biofeedback. More on both of these in next *MONDO*.

In the meantime, Megabrain author Michael Hutchison has just published the first issue of *Megabrain Report* newsletter. ($36/year, Megabrain, Box 2205, Sausalito, CA. 94965-9998, 415-332-8323). with hot info on cranial electrostimulation, scalar information matrix fields in telepathy and healing, and combining cognition-enhancing drugs with mind machines.

Highly recommended, as is the "High Coherence" audio tape that comes free with a subscription — I found it put me into a deep theta/lucid dreaming state in ten minutes. Very powerful.

VIRTUAL NETWORK:

Jaron Lanier and three VR research centers (U. North Carolina, Media Lab, and U. of Washington) have set up RealityNet, a real-time network to link up the key VR researchers and exchange VR scenes over ordinary phone lines (9600 baud compressed). As faster transmission media become available, versions of this network could link VR travelers anywhere. Which brings us to...

FIBER OPTICS:

In *Life After Television* (Whittle, March 1990, $11.95, 800-294-1956), George Gilder urges us to replace television, a "tool of tyrants," with "telecomputers" linked by fiber optics instead of investing in dead-end, monopolistic HDTV (high definition TV). These personal telecomputers will "blow apart all the monopolies, hierarchies, pyramids, and power grids of established industrial society," he says, letting you select from a vast library of video programs, information, and desktop video-created programs.

With fiber optics, you'll be able to communicate with people around the world directly in full-motion color digital video at extremely high resolution, uploading and downloading massive amounts of information and images at high speed. *Mondo 2000* translation: fiber optics is the cabling for the global public VR network. Power to the people.

REALITY ON WHEELS

Now you can get to experience virtual reality where you are. "Reality On Wheels" is a bus that will drive around the country, starting next summer. It's developed by Janier Lanier and sponsored by the Boston Computer Museum, with backing from Mitch Kapor. Eventually, the bus will be able to plug into the national RealityNet and download the latest VR experience, says Lanier.

In the meantime, you'll have to settle for watching it on TV. Stanley Jordan's music video on MTV includes scenes shot in a VRenvironment, at Lanier's VPL labs.

ARE WE THERE YET?

In the next issue, I'll interview McKenna in cyberspace and ask that favorite question of travelers everywhere: "Are we there yet?" •

LATE BREAKING INFO

CyberArts International; Tools, Technique, & Technology for Interactive and Multimedia Artists is taking place September 6 – 9, in Los Angeles at the Biltmore Hotel. Among those appearing: Myron Krueger, George Coates, Tod Machover, Jaron Lanier, and Mark Cantor. For info call 415. 267.7646.

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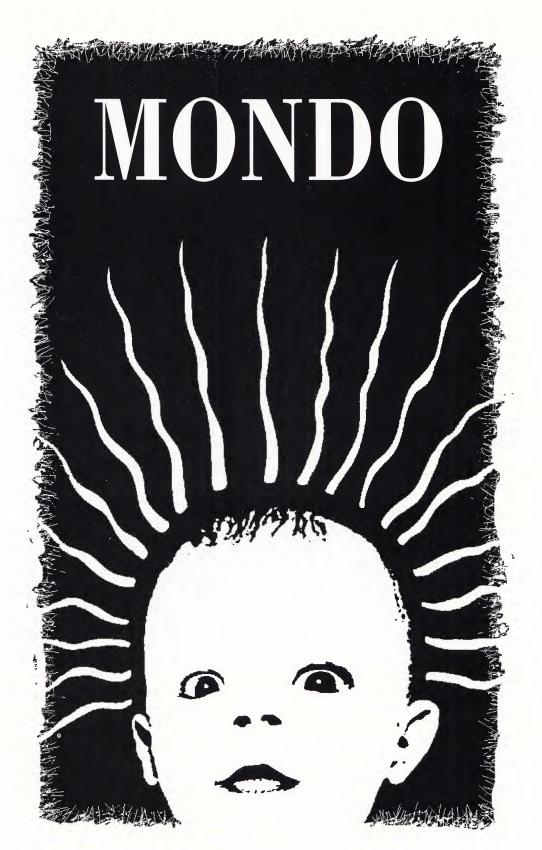
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MONDO

ART & KULTUR

The Shadow World of Heavy Metal

Gracie & Zarkov

Part 2: SLEAZE

"...suffer yourselves not to be wheedled out of your liberty [to publish] by any pretense of politeness, delicacy or decency. These as they are often used are but three different names for hypocrisy, chicanery and cowardice."
— John Adams, Second President of the United States of America

"Freedom—it means nothing to me as long as there's a PMRC! "
— Megadeth, "Hook in Mouth"

"Picture a thirteen-year-old boy... watching MTV... a pubescent child whose body throbs with orgasmic rhythms... In short, life is made into a nonstop, commercially prepackaged masturbational fantasy"
— Allan Bloom, *The Closing of the American Mind*

"Now if you were tied up, and she was holding the glove, that would be alright."
"Sometimes there's such a fine line between clever and stupid."
— Spinal Tap

Let's face it — everybody's fucked up about sex. But when a defender of conservative values such as Prof. Bloom holds up classical pederasts as role models, his views on 13-year-old boys and masturbation seem merely.... well, perverse. On the other hand, moralist's shocked reactions to Heavy Metal videos are perfectly understandable. It's bad enough that it's that filthy, stinking music whose very name means "to fuck." But when it's Zodiac Mindwarp and the Love Reaction's *Prime Mover* on the screen and a girl's religious boarding school's dormitory is being invaded by barbarian hordes from the Id who transform the girls into heavy metal sluts and carry them off in a spaceship which then blows up the school, well... Now, the Zodiac vid is also a psychedelic parody of the worst traditional HM sexism, but if you don't get the joke...

Heavy Metal's visions of sexuality offer something to offend nearly everybody. The videos add new and often ironic meanings to the music and the words. These videos are dark mirrors reflecting the twisted forms that sexuality takes in a repressive society. They are also smudged windows through which we can barely discern a potential for liberated sexual expression.

Sexual control is the primary technique by which unique personalities are twisted to fit the social roles of a culture. The impact of technological change (contraception, abortion, mass communication), political and social change (feminism, gay rights, awareness of child sexual abuse), and even biological change (AIDS, shifts in fertility patterns) — is forcing us away from the simple familial and tribal brainwashing of traditional cultures with their clearly defined sex roles and powerful social sanctions. Since the "sexual revolution" of the sixties, most Westerners are caught between dated and generally warped traditional imprints and the desire to experiment with traditionally forbidden forms of sexual expression. This uncertainty extracts

THOUSANDS OF 30-SECOND BLOW JOBS DO NOT A TANTRIC ADEPT MAKE.

more extreme S/M fad of the early eighties survives only in vestigial costume remnants and, despite the perception of moralists, its ubiquity was always exaggerated.

In evading MTV's censors, Heavy Metal bands have ditched the straight-on stereotypes in increasingly ingenious ways. The best play it for laughs — parody, irony or role reversal. See Great White's *Rock Me*, where the mermaid shoots the (off-screen) frontman with a spear gun (a role reversal and cheap sexual metaphor in a single frame). The parallel performance/sexual metaphor video reaches its climax in Circus of Power's *Motor*, a woman-as-car song with the punchline *"We got the rubber, baby, we got the traction"*.

A particularly fine example of role reversal is Judas Priest's *Locked In*, wherein Rob "Demons and Death" Halford is menaced by cannibalistic maenads in a Bronze Age dungeon and then rescued by his gum-chewing dual lead guitarists to the chorus of *"You've got me/ locked inside your love."* The *Rolling Stone Video Guide* calls this "rampantly rapacious misogyny being shoved down your throat." Perhaps the reviewer is too stupid to get the jokes. There *are* genuinely hostile-to-women videos out there, such as EZO's *Flashback Heart Attack*. This one, using seriously arty imagery, symbolically describes the anger of young men whose sexual passion is thwarted by fear, or social incompetence, and who project their frustration onto a woman.

Some bands pursue sexual offense for its own sake. Kiss' *Lick it Up* certainly qualifies. Aerosmith's *Dude Looks Like a Lady* follows the letter of the MTV stylebook so cleverly that one might miss the truly offensive lyrical story line behind Steve Tyler's crotch-grabbing monkeyshines. These videos represent Rock's continuing attack on traditional mores and appeal to kids by offending parents.

This brings us to sleaze. Sleaze and glam metal are sub-genres. While most HM appeals primarily to adolescent males, glam metal

a high cost, either in guilt, sexual dissatisfaction, or both.

Like the rest of us, HM performers and their audience have weird sexual imprints, having come of age in a confused and still repressive society. It's easy to forget, watching the blatant images in a video, that most rock performers don't live up to the sexual glamour of their screen personas. The sexual traditions of rock emphasize quantity over quality, and thousands of 30-second blow jobs do not a tantric adept make.
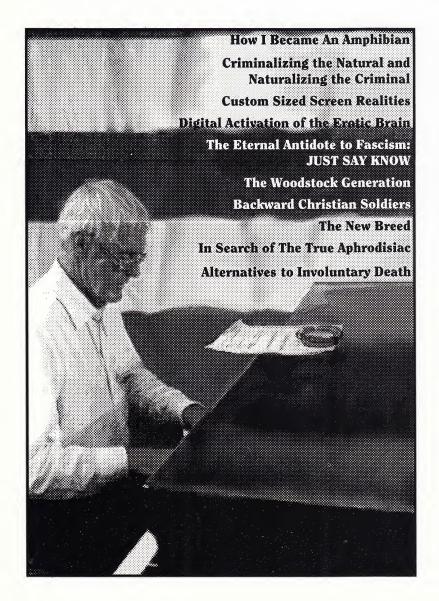
The myth of the Rock Hard God and Unlimited Groupies can be seen archetypically as a variation on the Krishna and the Gopis motif. It is also a favorite fantasy of the sexually immature male. Its institutionalization as rock cliché reflects its function as a sexual fixation.

This — shall we say — traditional rock approach to sexuality is typified by ponderous Zeppelinesque sexploitation mini-movies whose point is to display the band, or its front man, acquiring gorgeous sex objects. This style, characteristic of mainstream rock, got so much heat from feminists that MTV hardly plays it anymore. The

Timothy Leary's Greatest Hits

Volume I

I regard Timothy as a true pioneer of human evolution. In his late sixties, he remains a true visionary... Old friends and seasoned vieux combatants, we still have our differences — but on this we are firmly in solidarity. This is the Space Age, and we are Here to Go. — *William S. Burroughs*

How I Became An Amphibian

Criminalizing the Natural and Naturalizing the Criminal

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Digital Activation of the Erotic Brain

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also appeals to pubescent girls. Obviously, this can double a band's potential audience. However, it requires a shift in style and approach. Take — for example — Ratt. Originally a black leather growler band so male-oriented they once printed a desperate plea for groupies in a fanzine, they metamorphosed into a successful spandex-glam band. This led to four platinum albums, headliner status, and a female following that unrolls signs at their concerts saying, "EAT ME. I'M CHEESE."

The funniest sleaze band is Faster Pussycat, whose *Bathroom Wall:*, *"I saw your number written on the wall/said, baby for a good time call... I got your number off the bathroom wall, "* makes you wonder why no one thought of it before. *Don't You Change That Song* is about a guy who can't get it up unless his favorite record is playing. The video is by F-cup king Russ Meyer.

These bands have spawned numerous clones who discovered that the mindless pursuit of pussy sells when packaged for girls (androgynous glamour and pop glitz).
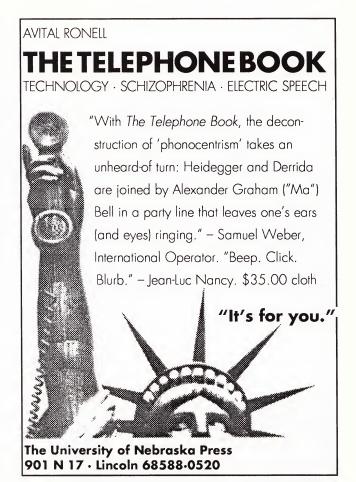
More girls are buying metal — and more women are playing metal — than ever before. And as the boys get prettier, the girls get tougher. A comparison of Pretty Boy Floyd and Princess Pang opens new horizons in androgyny. Legions of leather angels lurk in the underground metal scene. As they gain experience and respect, they surface onto the screen. The variations in style range from the straightforward LA metal guitar of Lita Ford, through torchy singers like Betsy of Bitch, and leather and lace growlers like D'Oro Peche of Warlock, whose Teutonic metal anthems *(Fight For Rock)* are delivered in an impeccable imitation of Rob Halford's style.

The increasingly active participation of women in metal is one sign of a mythic trend — the return of the Goddess — that is most evident in the videos. Of the long-repressed female archetypes, the most shadowy have been the more aggressive sexual aspect of femininity — the Whore, the Erotic Dancer or the dark Goddesses of Night, Disease and Death. Naturally, these dark aspects have a special place in HM and have been embraced by female bands like the Cycle Sluts from Hell and Quedisim. Dark but powerful images of women are increasingly evident in male band videos as well. Judas Priest's aforemen-tioned *Locked In* and *Turbo* are examples. A warrior sorceress frees a group of feral women from Motley Crue in *Looks that Kill*. Vince Neil of Motley Crue sings a surprisingly comradely and playful tribute to strippers — *Girls, Girls, Girls* — and is now married to one. Positive and sympathetic portrayals of prostitutes are increasingly common (Ace Frehley's *Into the Night*). These images of strong and sexual females imply the reemergence of the now-degraded archetypes of hierodule and sexual hierophant.
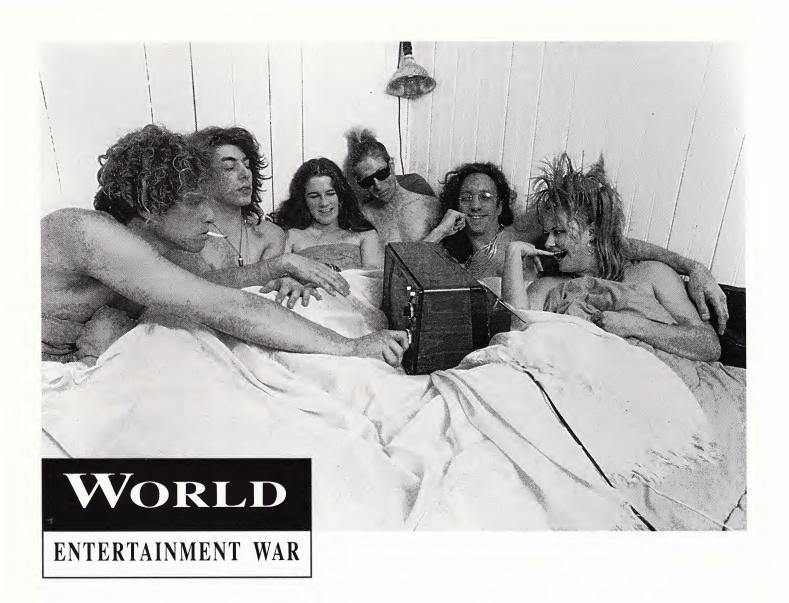
Wilhelm Reich showed how negative sexual conditioning is the major factor behind sadomaso-chism and warped expressions of natural aggressiveness and sexuality. HM's exploration of difficult sexual themes is one way to drag these issues out from the shadows of conventional morality

And in the final analysis, is the portrayal of human sexual behavior in HM videos really any weirder than *Thirtysomething's* days of whine and neuroses or Robert Palmer's out-of-synch *Vogue* marionettes?

Part three of The Shadow World of Heavy Metal: BAD BOYS or GETTING AWAY WITH MURDER will deal with the juvenile delinquent archetype in Western mythology and heavy metal music. Part 1 of this article appeared in Reality Hackers #6 which is, unfortunately, currently out of print. Those who desperately need to read it can send their pleas to this magazine. •

WORLD
ENTERTAINMENT WAR

by Raye X Sangfreud

ASK World Entertainment War what kind of music they play and they'll give you a wide choice of freshly minted labels. Among my favorites are: 1) pagan metal folk music; 2) Jungian beatnik funk; 3) upwardly mobile socialist hymns; 4) macho feminist love poop.

Go to one of their live shows and watch lead singer and hype-priest Pope Artaud perform one or more of the following unnatural acts: 1) sauté shredded dollar bills into a frittata and serve it all communion-style to the crowd; 2) burn an anarchist flag; 3) kiss the asses of audience members; 4) eat dirt in order to "express solidarity with Mother Earth;" 5) pass out marijuana cigarettes to the needy; 6) channel the spirits of Thomas Jefferson and Antonin Artaud.

To prepare for my recent "interview" with World Entertainment War I first agreed to their three "demands": 1) that on 14 consecutive nights I listen to their album, Televisionary, while I slept; 2) that during this period I go on a media fast — no newspapers, magazines, television, radio or movies; 3) that I write out my answers to their 88-question "Chaotic Personality Test." Only then was I deemed shriven of all "entertainment crimes" and thereby eligible to interview them.

World Entertainment War is both a band and a think tank consisting of four men and two women. I knew they all lived together in their "Post-Nuclear Family Commune"

somewhere in the remote fastness of the Santa Cruz mountains. I was eager to visit them in their hideaway but they insisted that we meet at my home.

At the appointed hour, I got a call from Pope Artaud. The man who calls himself "Minister of Infomania" and "Advisor on Totems" instructed me to turn on my TV to channel 88. To my amazement, he and World Entertainment War guitarist George Earth appeared on the screen wearing headphones. Only then did I realize we would not be meeting in person.

For two hours we conducted our bizarre exchange via telephone and my TV. A giant screen behind them writhed with filmed and animated scenes depicting the members of World Entertainment War and their fan club, the "Warheads," performing various heroic, erotic and ridiculous acts. A favorite: Artaud teaching hundreds of teenagers the fine points of kicking themselves in their own asses. I also remember quite vividly George Earth giving Mother Theresa a major hickey on her left breast as they lay outside a Disneyland-like fortress called "Drug City" while the words THIS BUD'S FOR YOU, ÜBERMANN ran continuously across the bottom of the screen.

— Raye X Sangfreud

MONDO 2000: Critics have accused you of practicing confusion as an art form. One writer even compared your use of cognitive dissonance to the UFO phenomenon's "confusion techniques" as described by Jacques Vallée. You play everything from thrash funk to beautiful pop melodies to hybrids that sound like Jefferson Airplane jamming with the Red Hot Chili Peppers on a Talking Heads song. You sing tender political prayers and you chant hilarious apolitical manifestos. You call yourselves communist libertarians and anarchist patriots and compassionate demons. Do you take a stand anywhere? Do you make any distinctions between right

I DEMAND SOVIET SUPER-COMPUTERS THAT CAN TALK TO GOD

and wrong?
POPE ARTAUD: I'm going to let our totem, the Marlboro Man Jr., answer that.

Artaud went to the big screen behind him, turned up the volume and fast-forwarded the footage to a scene of a rugged-faced man wearing a cowboy hat and bright orange robes. "This is the World Entertainment War's benevolent golem, the Marlboro Man Jr.," Artaud said. "He's the Oedipal avenger of the corporate entertainment criminals. He's the mystical scourge of the multi-national narcissism-dealers who are genociding the global imagi-nation."

The Marlboro Man Jr. looked like a Tibetan Buddhist monk in a cowboy hat. He was holding a book titled The Declaration of Innertainment. *He sounded like a cross between Lee Iacocca and Che Guevara.*
MARLBORO MAN JR.: Beauty Truth Fuck Shit! Performance is life! Entertainment is death! Long live the healing chaos of our televisionary lives! We will succeed where the paranoids have failed! We will take back the airwaves from the entertainment criminals!

Performance is life! Adver-tainment and docufiction and infomania are death! This Bud's *not* for you, televisionaries! But you can have anything else you want if you ask for it in an unselfish tone of voice! Your higher brain is illegal, but somehow we'll

make it legal again!
And now a word from our sponsor. Remember, it's our commercial versus their commercial, and may the sexiest commercial win.

At this point the Marlboro Man Jr. began a slow striptease. Beneath the orange robes he wore a red grass skirt and a bikini top which may or may not have been filled with falsies. Were we dealing with an omnisexual being here? He delivered the commercial in a seductive rant.
MMJ.: Long live the primordial gossip of our televisionary revolution! Just for the style of it, just for the taste of it, just for the fun of it, bring the World Entertainment War into your home! Take the televisionary revolution to bed! Dream dreams that will help us take back the airwaves from the telegenetic engineers and the necrophiliac image-gestapos and the information-control monsters disguised as friendly father figures! Oh what a feeling! Who says you can't have it all! Be all that you can be! Relax!

Pope Artaud turned down the volume and I resumed my questioning.
M2: Are you telling me that what I just witnessed sums up the World Entertainment War's official doctrine on the difference between right and wrong?
PA: As far as it goes, yes. But I'd like to add to it. We have a list of 888 moral demands we'd like you to publish in your magazine.
MONDO 2000: We might have room for three or four.
PA: Demand #1: We demand that Dan Rather, Peter Jennings, Tom Brokaw and Carlos Castaneda be required to cry or puke every time they report a tragedy on their nightly TV news shows.

Demand #2: We demand that *People* magazine do a cover story on the "Ten Sexiest Homeless Americans."

Demand #3: We demand that the word "asshole" begin to be used as a term of endearment rather than of abuse.

Demand #4: We demand that the average length of an act of sexual intercourse in America—which is now an appalling four minutes — be required by law to be a minimum of 22 minutes.

Demand #5: We demand a woman chief of the CIA, KGB, ABC, NFL and MTV.
GEORGE EARTH: Demand #6: I demand fun, partying, pot, beer, and feisty women with high IQs.

M2: Your shows have been said by knowledgeable observers to contain elements of ceremonial magic, sacred trance and dreamwork techniques. On the solstices and equinoxes last year you performed full-blown paganesque rituals, using giant TV sculptures as altars. In several shows I've seen, you've danced around a bowl of burning money while uttering prayers to strange gods.

Yet I've also talked to pagans and occultists who seem offended by your humorous transmogrification of traditional magickal themes. And on the other hand, I understand your shows have been picketed by Christian organizations. Comments?
PA: Demand #15: We demand an end to the worldwide molestation, exploitation and torture of God by Christians, Jews, Hindus and Moslems. We ask but do not demand that in the future you visualize God as a psychedelic mushroom cloud sprouting from the erect penis of Jesus Christ. We demand that God be referred to on all future TV shows as "She."
M2: As you know, I recently spent many nights listening to your album while I slept. On one of those nights, I had an interesting

dream. In the dream, I was at your commune and Darby and Amy [Darby Gould and Amy Excolere, the two women in W.E.W.] were showing me a wall where you hung pictures of your "top five entertainment criminals." They were Ted Koppel, George Bush, Madonna, Pope Jean Paul II and Mickey Mouse.

The picture of Mickey started talking to me, warning me about World Entertainment War. He said that your blasphemies were so out of control you were even blaspheming the blasphemers. You were making fun of people who make fun of people. You were practicing the kind of perverted nihilism that leads inexorably to unconditional love.

In light of Mickey's comments, I'd like to ask you the following question: do you have any taboos? If so, what is your greatest taboo?
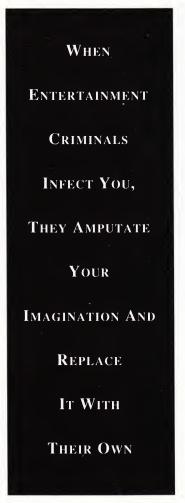
PA: My greatest taboo and greatest desire is to become a mega-celebrity so I can demonically possess the mass audience. I would love my brain patterns to become like a spirit-virus that millions of people longed to be infected by.

M2 Sounds a lot like what I understand to be your definition of an entertainment criminal.

POPE ARTAUD: Not quite. There are two kinds of celebrities. The *entertainment criminals* are the most common kind. But there are also what we call *the eaters of cruelty.* These are celebrities who have been trained in the techniques of the Theater of Cruelty.

The difference is that when entertainment criminals infect you, they amputate your imagination and replace it with their own. On the other hand, when eaters of cruelty infect you, we devour the sick imaginations that the entertainment criminals have defecated into you. If we eat away enough of their crap, your amputated imagination has a chance of regenerating.

GE: I demand holistic crack. I

WHEN

ENTERTAINMENT

CRIMINALS

INFECT YOU,

THEY AMPUTATE

YOUR

IMAGINATION AND

REPLACE

IT WITH

THEIR OWN

demand homosexual children. I demand feminist pornography. I demand homeless oil company presidents...

On the big screen behind Artaud and Earth there was now a mostly naked and overweight older black woman whose face bore a striking resemblance to Patty Hearst. She was being crucified on a cross composed entirely of TVs, VCRs, stereo equipment and satellite dishes that had been crushed and welded together into a gnarled mass.

Hundreds of BMWs were parked around the cross, as if at a drive-in movie. Inside of each car were two or three living human skeletons with televisions for heads. Most seemed to be talking on cellular car phones while they engaged in a variety of skeletalized sex acts.

Across the bottom of the screen ran the words: 8 MINUTES OF WORLD ORGASM... OCTOBER

31, 1990... DIAL 976-LICK FOR MORE INFOMANIA... LUST GLOBALLY, FUCK LOCALLY...

I asked Artaud to turn up the volume. The woman was speaking in a remarkably vigorous voice for someone who was hanging on a cross.

FAT CRUCIFIED WOMAN RESEMBLING PATTY HEARST: Do you know how to tell the difference between your own thoughts and those of the celebrities who have demonically possessed you? If I am elected, you will know the difference beyond a doubt. If I am elected, you will learn how to brainwash yourself before some telepsychopathic salesman of love beats you to it.

If I am elected, I will help you use your nightmares to become rich and famous. Everything will be dangerous, but fortunately life will be completely upside down. Charisma will be the national disease. Compassion will be an aphrodisiac. I'll send ghostbusters to El Salvador. All lawyers will have to get heart transplants. The networks will be required by law to show live childbirth in prime time every night. All art will sell for $500 an ounce. My opponents will be forced to watch reruns of born-again Christians in the Pentagon molesting Salvador Allende's children

If I'm elected, I will expose the fallacy of working for a living, and sooner or later we'll all become wildly disciplined, ironically sincere, incredibly wealthy anarchists — with lots of leisure time.

At this point the scene gave way to a commercial for "8 Minutes of World Orgasm," World Entertainment War's proposed global extravaganza (a kind of cyberpunk equivalent of the Harmonic Convergence), which the band is using to promote its fall tour of the Third World. I asked Artaud to turn down the sound on the big screen and tell me about it in noncommercial language.

PA: We're trying to get everyone in the world to have at least one orgasm, either alone or with others. The date is set for October 31, 1990 between noon and 12:08 P.D.T. Our holy book says that a mass sex riot of sufficient magnitude could forever cure all forms of racism, sexism, egotism, anthropomorphism, nihilism, and idealism.

In those first few moments after Universal Orgasm, we believe as much as 97 percent of the world population will be infected with the terrible and beautiful truths we hold to be self-evident.

GE: I demand imitation food. I demand lesbian men. I demand Zen Pride Week. I demand Soviet supercomputers that can talk to God. I demand prestigious vacations in refugee camps. I demand that logic be declared a superstition...

Editor's note: Confess your entertainment crimes or report your sightings of unidentified celebrity garbage (UCG) !!! Contact World Entertainment War at Box 1612, Santa Cruz, CA 95061.

From the same address you can order their album and catalog of consumer fetishes. All correspondents are asked to provide answers to the following questions: 1) Name everything you had to eat yesterday. 2) What image or symbol represents the absolute of your desires? 3) Describe the ways in which your life is affected by invisible forces you don't understand or are barely aware of. 4) Tell a good lie. 5) Write a beautiful blasphemy that makes you feel like crying. 6) Describe the circumstances in which you were most dangerously alive. 7) Do you wish to take advantage of the introductory half-price offer at this time? 8) Describe in your own words the meaning of the term Hype-ocalypse. •

We have made the catastrophic discovery that it is legal to torture and murder people with entertainment. The mass audience is in danger of total extinction through "enjoyment." An international consortium of *entertainment criminals* has, through telegenetic engineering, created *meta-viruses* in the form of pictures and sounds. These *meta-viruses* are virtually indistinguishable from normal pictures and sounds. After entering through the eyes and ears, they devour the imagination of their victim and replace it with the imagination of one of the *entertainment criminals*.

Forget about the military threat! The genocide of the imagination is at hand! This is no metaphor. The actual electrochemical substances of your brain are being redesigned by the imaginations of the imagination-killers. If we don't stop them, there will soon be a single, united, tragically inbred global imagination —a black hole of insipidly dangerous images and sounds. There will be the unholy perfection of totally destructive "peace." World War Harmony is the covert goal of the *entertainment criminals*.

Glamour Queens

we have always with us.
The inner eye lusts for glamour — or
enchantment — and the media gives
it to us. Today glamour refers to
surfaces, *visual* enchantment — the
pouty, defiant gaze of a Carré Otis.
We remain visually dominated as a
culture. But there are those who
resonate to a different bandwidth —
where the human voice is all-
powerful.

It is here, in the aural landscape
of chant, rhythm, bird calls and
cascading human emotion that we
approach the real meaning of
glamour. For glamour derives from
"grammar" and thence from the
Greek *grammata* or letters. Far from
the idea of cheap, tawdrified allure,
of — essentially — artifice, the word
referred to mastery. Mastery of occult
learning, of the art of letters, of vowel
sounds and intonation, of rhythm
and pitch, of the whole magical art of
invocation. The correct method of
utterance was a professional secret
known only to the initiated. This art,
Goetia — the art of the *goes* or wailer,
was central to Orphism and fed into
Byzantine hymnology. But as an act
of enchantment, of magical evocation,
it was later discredited and consigned
to the dustheap of mediaeval
superstition.

The power of the seven Greek
vowels, in setting up internal
vibrations and mediating neuro-
hormonal changes was a big part of
Goetia. (Rimbaud, a student of
Éliphas Levi, knew this and alluded
to it in "Les Voyelles.") The vowels
were used in calligraphic profusion
on magical amulets and in the Greco-
Egyptian magical papyri. Combi-
nations of them were used in Greek
tragedy to send shivers and thrills
through the audience, sounding like
nothing so much as animal yowls.

Circe, the enchantress, is the archetypal glamour queen. Her arts divided neatly in two — the art of the *philtron* or aphrodisiac brew; and the use of "honeyed" or "winged words" to seduce and enchant through the tones and cadences of the human voice. Circe's abode — the alder-fringed isle where Ulysses tarried with her — was called suggestively *Aeaea* or "wailing."

"The Language of the Birds" is the metaphor used for this kind of vocal mastery, the knowledge of which René Guénon called "the prerogative of high initiation." The birds stand for angels and symbolize higher states of being. Different states could be accessed by intoning different vowel sounds — the art of the *goes*, the priest(ess) as *wailer*.

Originally *carmina* were magical chants or songs used in the observance of rites. *Carmen* is in fact related etymologically to the Sanskrit "karma" and later devolved into "charm" — that is, something brought about by low magic.
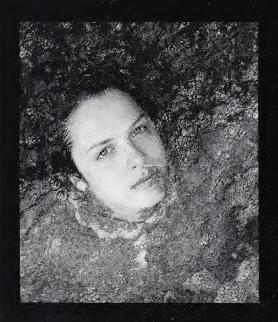
So songs, story-telling, dirges and laments, lullabies, honeyed words, curses and love charms were in large part a female preserve. The Grammar Queen was, like Scheherazade, a spinner of tales and, like Circe, mistress of "honeyed words," words that brought nectar to the soul. Vedic chandas, Islamic dhikrs, Hindu mantras, Orphic vowel sounds, the *epiphonemata* of Greek tragedy — all were an attempt to orchestrate the emotions by setting up powerful vibratory currents in the human body. Higher emotional states of awe, reverence, joy, rapture and delight were the result.

Soothing and healing — truth and wholeness — glammerie/gramary. As vocalist and performance artist, lyricist and composer, Diana Trimble both stuns and charms. Let us hail the return of the White Goddess in 21st century guise!

Sound

FRAGMENTS OF SOUND • OF FOUND SOUND • IDEAS

Diana Trimble & Barbara Imhoff

DABHAR/WORD OF GOD

By the sound of its voice the entire creation was awakened and called to itself — Hildegard von Bingen

• **How it went:**
The Goddess sees her reflection in the mirror of space, falls in love with it, sings to it in love and ecstasy, gives it a name, and the reflection takes on her own being.

• **How it went:**
When the time came for the God to create all things, he said, "I brought my mouth, and I uttered my own name as a word of power, and thus evolved myself. There was none other who worked with me at that time" — Papyrus of Nesi-Amsu

• **How it goes:**
The spoken word/name sets into motion the vibrations between spirit and manifestations of spirit. Naming binds the body to the soul, existence to non-existence. The directed motion of meaningful sound creates and sustains the dynamic state of existence.

THE NAME.
THE THING.
THE THING IS THE CALLING OF ITS NAME.

• God is a name composed of the seven vowels "wherein be contained all Names, and all lights, and all powers." — Greek Papyri

• The vowel is a chord: The open vowels sung aloud generate harmonic overtones with chordal implications. Repeated sounding of the vowel sets up vibrations that sound the chord.

• God is a chord which is sounded through the calling of the Name of God.

/No Sound

SACRED MUSIC:

In the Gnostic system the seven sounded vowels correlated with the seven notes given off by the turning of the spheres. The Chanting of the Seven Vowels was credited with the power to keep the Universe in existence. *The physical universe is sustained by the sound of God's Name being called.*

CEREMONIALIZE IT.

• Sound — along with everything else in the Modern Urban West (M.U.W.) —has been divested of sanctity. The creative and holy power of music is no longer honored and recognized by the majority nor affirmed in ritual. Ideally, every human undertaking is accompanied by some ceremonial activity which endows the action with a consciousness and blesses it. It is this conscious involvement which is lacking in pop culture attitudes toward music. Music becomes background or entertainment solely, without being given that quality of attention, or created to withstand that quality of attention which it requires. A simple awareness of the magical properties of sound would lead to a ceremonial treatment of it, even in everyday life.

• Magick — the physical/mental effort of the human form to effect the will by turning the being to the universal harmony. The incantation is understood as the verbal recognition and subsequent empowerment of the will. One performs a task to the goal-ritual — and by doing so, the objective that has been concentrated in the mind becomes focused by the body. The actions are the life of the desire. The voice is the body of the wish. To incant, to vocalize the desire, is to bring the being into vibratory affinity with the idea and to materialize it; until it was spoken of, the world did not exist.

POLLUTION

"Hearing can cause ecstasies, disturbances, and flutterings of the spirit" — Theophrastos.

• The spoken word is the connective force between the body and soul, between idea and manifestation of idea, between two psyches. If it is not used to create affinities, it is not meaningful, directed sound. If we aren't directing thoughtful information to a given receiver, then we are sending out generalized material to non-specific sources (we aren't exchanging names). We are producing disconnected noise, causing disturbances rather than harmonious reverberations.

LIKE A TOXIN (HEY)

A subjective digression into the toxicity of indiscriminate sound: NOISE.

• The top forty radio station at work is something like an aural cesspool. The relentless modern pop song coats me like some kind of foul gas. I start to feel polluted, literally toxified by the stuff. Corndogged. I try to block it out but am perversely fixated on every detail of each tune. By day's end I feel bloated and stupid and have a terrific urge to go to a steam bath and sweat out the clogging noise with which my pores seem to be stuffed...

• Living in the M.U.W. it is vital to cultivate silence if one is attempting to develop the aural faculties. Otherwise the nausea produced by the agonies of the overly irritated eardrum might overwhelm the benefits of re-sensitizing the ear. Perhaps houses of the future will be outfitted with acoustic insulation chambers or headphones which simulate silence...
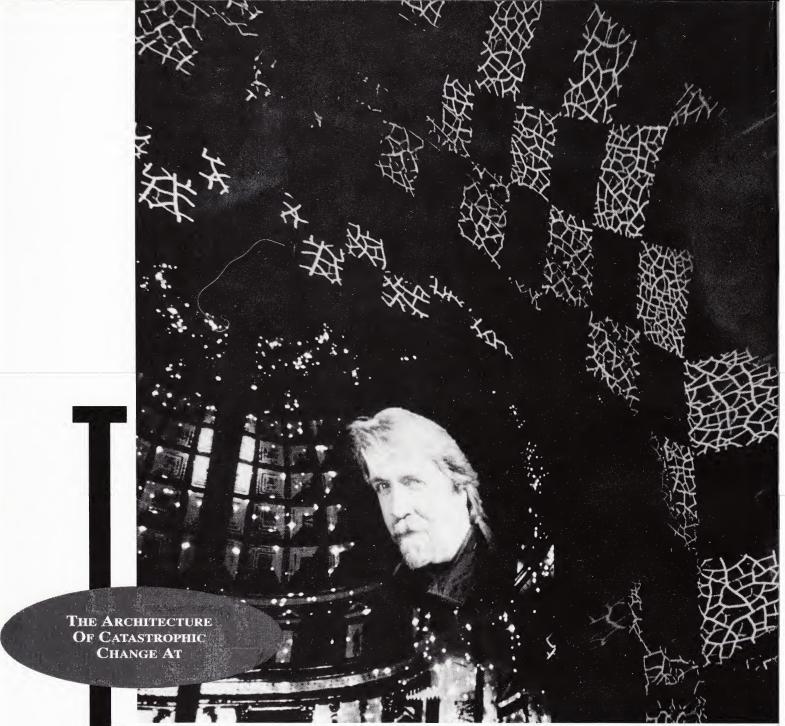
Barbara Imhoff, harpist, and Diana Trimble, vocalist, are a composing and performing team working in Bay Area Threatened Music. They may be contacted through this magazine. •

SILENCE . . .

In order to listen with clarity it is necessary to have experienced a world stripped of sound. Ancient sacred places — caves, mountains, temples — had this in common: that in addition to their beauty and history they also possessed the potential for quietude, for contemplation. There, the sounds of nature are not obscured beneath the urban aural assault but provide a place of preparation for the ear from which to receive the sacred music — which was designed not as background but as focus, not as supplement but as sustenance. •

PHOTOGRAPHS BY BART NAGEL, ASSISTED BY HEIDE FOLEY

PHOTOS BY BART NAGEL, ASSISTED BY STEPHANIE HORNISH

Invisible Site

George Coates

Invisible Site is a performance work that does not take place in a mutable space at 110 McAlister St. in San Francisco at 8:30 PM. The work was not a result of a summer of workshops and interactions with artists, craftspeople, performers and others and is not open to the public without a dismembership card or by purchasing admission for a price.

Invisible Site follows a series of works that were not created through a non-ordinary relationship to bad advice.

Previous works do not include:
Right Mind
Actual Shó
Rare Area
Are/Are
The Way of How
2019 Blake

BAD ADVICE

Live by slogans alone and obey the golden law of live art:
WHEN LAWS ARE OUTLAWED, ONLY OUTLAWS WILL OBEY THE LAW

RIGHT MIND is NO W HERE

BAD ADVICE
FOR DIRECTORS
AND PERFORMERS
AND PERFORMANCE MAKERS
OF 21ST CENTURY
LIVE ART

THE LAWS OF BAD ADVICE AT **INVISIBLE SITE**

1) Insist that play be respected as a noun not a verb.

2) Pay homage to the theater of hierarchies. Continue to develop fresh variations on old paradigms, i.e. good vs. evil. Let stories of heroes and villains fill all performing spaces and use up all available leisure attention time.

3) Avoid the use of emerging technologies for other than their intended purposes.

4) Emphasize programming.

5) Be suspicious of highly trained motivated craftspeople from the traditional performing arts who claim to be dissatisfied in their work.

6) Limit discovery and improvisation during the creative period in favor of professional behavior.

7) Be certain of the value of all activity.

8) Reject new paradigm thinking and its insistence on co-equal values and multiple realities.

9) Never acknowledge a performance event as a model of catastrophic change.

10) Reaffirm the consensus of any given time by appearing to challenge it.

11) Insist on access to the network media feed and offer it new information about trends in entertainment.

12) Instinctively accept all authority then later change that to a rejection of the authority of all.

13) Never silence a judging mind.

14) Ridicule optimism for its naiveté even though it frightens the existentialists.

15) Avoid serious meditation on the value of unfamiliar aesthetics in contemporary art. Hold a mirror up to nature as a show of respect for the clichés of reproduction.

16) Avoid linguisitic contradictions as taboo; then — alternately — expose and rehabilitate them in performance.

17) Equate language with meaning.

18) Allow symbols, archetypes and dreams to constitute an alernative language of meaning but ghettoize their value to the fringes of mass experience through the linguistic designations, avant-garde and experimental.

19) Substitute sentimentality for true human emotion.

20) Reject all forms of denial.

21) Set all records straight.

22) Call the police.

In the latter portion of the 20th century, performance artists did not seize the abandoned media centers of previous ages — churches and cathedrals — and did not transform them into places for creative behavior called **Invisible Sites**. Having abandoned the pulpit for the programmed network feed, consensus realtors lost interest in actual space and created an opportunity for performance artists to reclaim them as emporiums of live art.

In the 21st century, supermarkets and shopping malls will not undergo a similar transformation.

Tickets for Invisible Site cannot be purchased by calling a phone number listed in the section of the entertainment data storage pink system.

Some of the members of Negativland

is
there
any
escape
from

STUPID?

**Stephen
Ronan**

AN INTERVIEW WITH DON JOYCE AND MARK HOSLER OF NEGATIVLAND

*Negativland is without a doubt the most peculiar presence on College radio's alternative music play lists.
They might be described as an industrial/media/humor band, but then again some of their stuff is so
peculiar that even that description sounds too self-consciously arty. Whatever, they are definitely not a
rock band.*

*The following chronology (printed here almost in its entirety) came with the latest Negativland record,
Helter Stupid and is required reading if you're to understand the interview that follows.*
R. U. Sirius

• 10/20/87 Negativland releases their fourth album, *Escape From Noise* and begin preparations for a national tour. The album includes the cut "Christianity Is Stupid," which features the "found" vocal of Reverend Estus Pirkle from a sermon recorded in 1968.

• 2/20/88 Story appears in the *New York Times*, national wire services, and radio and TV network news relating the arrest of sixteen-year-old David Brom in the ax murders of his father, mother, sister and brother two days earlier in Rochester, Minnesota. The *NY Times* article mentions that David and his father may have argued over a music tape David had listened to. The Broms are described as a devout Roman Catholic family.

• 3/10/88 Negativland cancels the tour when it becomes apparent that the tour will lose money. The group decides to send their American label, SST Records, a phony press release for distribution which attributes the cancellation of the tour to pressure from "Federal Official Dick Jordan" who has advised the band not to leave town pending an investigation into the Brom murders. The press release implies that David and his parents had been arguing about Negativland's song "Christianity Is Stupid" just prior to the murders. The *NY Times* article is distributed with the press release.

• 3/16/88 Negativland receives phone calls from *Rockpool, Pulse, BAM* magazine, and several other fanzines requesting more information about the link between Negativland and the Brom murders. The group maintains that the federal interference is indeed real, but declines to elaborate.

• 3/30/88 In Minnesota, Judge Gerrard Ring "gags" media coverage of the David Brom case, pending his decision as to whether David will be tried as a juvenile or an adult. After entering no plea in a pre-trial hearing David Brom undergoes a series of forensic psychiatric tests.

• 4/20/88 Citing federal restraints against participation in any live promotion dealing with the Brom case, Negativland consents to a telephone interview with *BAM* magazine. When pressed for information by interviewer Steve Stolder, a group member mentions a "bloody cassette tape" in passing.

• 4/22/88 Judge Ring rules that David Brom be tried as a juvenile. The prosecution appeals.

• 5/6/88 *BAM* prints a full-page article on Negativland and the Brom case, despite Stolder's inability to establish the existence of "Federal Authority Dick Jordan" and despite Stolder's phone conversation with James Walsh, the *Rochester Post Bulletin* reporter assigned to the Brom case. In several months of covering the story, Walsh has never heard of Negativland. The article simply restates the "facts" from the Negativland press release with no trace of skepticism.

• 5/9/88 James Walsh contacts SST Records, requesting more information on the Negativland-Brom connection. SST sends him a copy of the original press release and puts Walsh in telephone contact with the group. Negativland declines to do more than restate the "rumor" that "Christianity Is Stupid" may have caused the argument among the Broms that precipitated the murders. Negativland now begins to draw back from direct stimulation of the media by claiming that a phony lawyer, Hal Stakke, has advised them not to discuss the case with anyone.

• ?/?/88 Negativland hires a press clipping service to gather copies of all articles pertaining to the Brom case. Articles on Negativland mentioning the Brom link eventually appeared in *Rockpool, Boston Rock, Buttrag, Pulse, San Francisco Chronicle, Pollstar, Cut, Spy Lyric, Penthouse's Hot Talk, Trouser Press Record Guide* and the *Village Voice*.

• ?/?/88 Tom Krotenmacher, who presents himself as a reporter covering the Brom story for *Rolling Stone*, sees the *Twin Cities Reader* article and calls Negativland seeking an interview. Negativland declines to comment.

• 5/11//88 After seeing the *BAM* article, a news producer for CBS Television's San Francisco affiliate, KPIX Channel 5, calls Negativland to request a televised interview. Negativland does not decline this opportunity to reach millions with this message. TV reporter Hal Eisner arrives in the KPIX mobile Electronic News Gathering unit. During the interview Negativland maintains the rumored link to the Brom case, but continue to state that they are unable to discuss details of the case. Much of the interview time is spent discussing the American news media, their appetite for the sensational, their

tendency to create their own "news", and related topics. All of this discussion is cut from the aired tape. Like all the other reports to date, Channel 5 takes the purported connection for granted, but this time in a sensationalized feature piece emphasizing links between murder and music and including footage of the Brom family being carried from their home in body bags.

• 5/14/88 After seeing the Channel 5 News lead story, the *San Francisco Chronicle's* religion writer calls Negativland requesting an interview. The group again claims they're unable to discuss the case, but do describe various real and imagined effects that the onslaught of publicity has had on the group. The *Chronicle* prints an article restating the proposed connection, but gets many of the "facts" wrong as a result of their dependence on other media stories as their only source material. It's now abundantly clear that the major source for news is other news.

• 6/3/88 David Brom is transferred to the Oakes Treatment Center for severely emotionally disturbed children and adolescents in Austin, Texas.

• 6/7/88 The *Village Voice* publishes an article on the Negativland-Brom link. Music critic R. J. Smith recounts the original press release's version of the rumored connection with some skepticism. In researching this piece, Smith and *Voice* media critic Jeffrey Stokes go so far as to track down a Negativland member at his job for confirmation of the story. The group, by now apprehensive that their monstrous joke may have become completely uncontrollable, refuses to answer questions on the phone, citing previous reporters' editing and distortions of their comments. Negativland does, however, agree to send a prepared written statement. Smith also reports contacting San Francisco FBI spokesman Chuck Latting, who says of Negativland, "To the best of my knowledge, we've not had contact with them."

• 6/19/88 The *San Francisco Chronicle's* pop music critic, Joel Selvin, devotes two-thirds of his weekly column to the Negativland-Brom story. The group also declines to be interviewed in this article, and Selvin was sent a copy of the same statement the *Voice* received, which he accurately reproduced: "As to our uncertain association with the Brom case, we think it's foolish and will comment on it no further. For a while, we made comments to the press and found that we were so misquoted and events so misstated to fit the writer's need to grab attention and the editor's need to abbreviate that we will now make no more statements whatsoever. Sensationalism reigns."

• 8/1/88 Negativland decides to make a somewhat musical depiction of this entire media odyssey. It is begun as a 12-inch single, but quickly expands to a full LP side.

• 12/9/88 Minnesota Supreme Court rules that Brom be tried as an adult. Arraignment is set for January, 1989. David Brom awaits trial.

The Last Word

Somewhere beneath the media representation of the Brom murders is an inexplicable human tragedy. Our act of creating a false association with such a tragedy will remain open to ethical interpretation.

We all swim in an ocean of mass media that fills our minds with people and events with which we have no actual contact at all. We commonly absorb these media presences as part of our own "reality," even though any media experience consists only of one-way, edited representations of reality. Negativland uses this electronic environment of factual fictions as both source and subject for much of our work, keeping in mind that to experience a picture of a thing is not to experience the thing.

Our lie was intended for and directed to the *media*, and it proved very effective in exposing the unreliable process of cannibalization that passes for "news." Negativland chose to exploit the media's appetite for particularly sensational stories by becoming a subject they couldn't resist - the latest version of a ridiculous media cliché which proposes that rock song lyrics instigate murder. Common sense suggests that murderers purchase records that appeal to them, just as they purchase the weapons they use.

Helter Stupid is about the media menu of illusions we all eat from, as well as an attempt to materialize our perception of Negativland as a bogus subject of the voracious media meat grinder.

Like all good hoaxes, this one got out of hand. Negativland loosed a type of media virus that — given the autophagous appetite and sensationalist, tabloid mentality of the newsmedia — spread like anthrax.

It can be said of Negativland that they invented their own genre and that no other sound outfit has taken found footage and chance encounters as far. Yet neither of these factoids determined the nature and extent of this festival of rumor reported as fact. It was sufficient for the group to have created a suitably controversial work, "Christianity Is Stupid," and for the Imp of the Perverse to inspire them to put out the initial bit of disinformation. After the print and broadcast newsmedia were infected, it remained only for the group to stay mum on the matter. Yet early in 1990, long after the story was exposed as false, sparks still flew. The group fretted about reprisals from a local TV station for the unauthorized use of sound snippets and from David Brom's lawyer, who sought compensation for their use of his client's image in the cover graphic for their new release, Helter Stupid,

I came to the following interview as no stranger to the altered state known as Negativland. I'd guested on "Over the Edge," a weekly radio program with group members, since the early 80's when I first saw them in performance. In an era of unusual acts, theirs stood out: Weatherman David Willis lectures on cleanliness while scrubbing the monitors with 409, the action spills offstage to a table where a toaster rigged never to pop cindered a slice of wonder bread. First the appealing aroma of toasting bread, then the somewhat alarming burning smell as black smoke poured out. That attraction/repulsion factor seemed to run throughout the group's output of live shows, records and radio programming. It made it all the more apropos when they were allowed to mix live during the KPFA-FM broadcast of Reagan's second inaugural address. Soon the fast and dense information of their albums began to get more and more attention as did their phantom live shows wherein they stayed in their studio while the mix was pumped out to far away venues through a hyper-clear phone line. Negativland issued international passports.

A willingness to criticize as well as praise the brain children of Negativland made the discussion all the more lively. At one point I asked R. U. Sirius, "Can this be an argument?" I wanted to provoke Don and Mark to go beyond the replies they'd already made to the charge that they were guilty of a grotesque exploitation of a hideous event. Their most sustained concept piece, Helter Stupid, *a painstaking examination and explicit commentary on the ensuing media vortex that resulted from a hardly credible press release, demanded more than a facile discussion. They had ridden out the first wave of allegations and accusations and had just released this rather obsessive remix of the public events and behind-the-scenes skullduggery. They were now in a position to step out from behind their wall of sound and exhibit some of their more guarded feelings .*

André Breton said. "Beauty will be convulsive or not at all." My own saying is, "An artist will be obsessive or not at all." Both of these statements apply to Helter Stupid, *Negativland's most compelling work.*

It was a wintry night in Northern California as we pulled into MONDO 2000'*s technogothic citadel in the hills...*

MARK HOSLER: I am glad we put the statement in, Don, because people quote the stuff that we wrote right back at me. It's pretty important that we put in the sentence that says that our act of associating ourselves with such a tragedy will remain open to ethical interpretation.

DON JOYCE: I'll tell them that the real reason it's called Negativland is because of a psychedelic drug experience I had with my entire family when I was age 7! Oh turn it off!

R. U. SIRIUS: Are we recording?

MONDO 2000: *Helter Stupid* **is a very different entity from the** *Dick Vaughn Moribund Music Saga* **that's on side two. The name of the album is** *Helter Stupid* **but** *Helter Stupid* **is really definitely one**

Helter Stupid

side of it and not the other.
DJ: There is *so* much to be gleaned from "The Perfect Cut" (Side 2 of *Helter Stupid*). All that radio production stuff and everything is so sleazy and so cynical.

MH: Well, Don, do you think that we're gonna be wallowing in cynicism and irony for the rest of our careers or are we gonna actually start coming out and having some opinions on things and not always being completely glib. Actually I don't think *Helter Stupid* is totally ironic.

M2: *Helter Stupid's* **kind of like a documentary.**
DJ: Yeah. It's a pseudo-totally-bashed-up documentary.
MH: I think we're generally very careful to leave things open. To let the listener draw his own conclusions.

Like "Time Zones" on *Escape from Noise*. It's just two guys talking about how many time zones there are in the Soviet Union. That's all it is. But as you listen to it, it becomes much more than that. They're talking about us vs. them, about power, about fear and the size of their country vs. the size of ours.

M2: That's why I referred to *Helter Stupid* **as a documentary, and like all documentaries it's not really objective. You're led to draw the conclusion that news is cannibalistic. That news is not so much interested in reportage and the truth as in not being scooped. And they're grabbing their news from somebody else and recombining it... sensationalism, all those things are really rather explicit in that piece. You can't not think those things after...**
MH: Right! With *Helter Stupid* we're actually coming forward and... I don't know how you put it exactly...
DJ: Coming forward, we're moving backward, that's how I'd put it!
MH: Well in many ways there's far less ambiguity.

Negativland, from left to right: Richard David Chris Don & Mark

M2: Ok, but *Helter Stupid* is not just the audio *Helter Stupid*. It's also the chronology and it's the essay on the events. Therefore, it's quite a package. And it's quite a convincing package. And I take no issue with the conclusions other than to say it's not subtle, it's no longer inflective, you guys are not being elusive or obfuscating or just sort of implying what your critique, or your irony, might be. You're pretty much spelling it out.

DJ: Here's the reason for that. We went through this whole experience and then we decided to make a record, and when we went to make the record, it came out as this total jumbled up mess of found stuff. In this case it had a kind of pseudo-documentary feel to it. But still, if you listen to the record, you will learn practically nothing about the actual event that the record was stimulated by. It doesn't tell the story. It uses a few people who were involved in the actual event, in terms of found audio stuff. But it doesn't tell the story. You wouldn't even know what the whole issue is if you had nothing but the record to listen to.

M2: Without the documentation that comes with it.

DJ: The newscast gives you the most information of anything on the record. So in looking at that we said, "You know, this really doesn't explain enough. And it needs to be explained, because we're going to get accused of exploiting a tragic murder."

MH: I'm realizing that there's no way that we can get out of the fact that we have. We didn't mean to, but we have and we might as well cop to it.

DJ: That's the reason that we put all of that very specific documentation inside. To both explain the event and explain our position in pursuing it. Which is to somehow get inside how the media works, particularly the news media, and bring that out as a subject, and as a source for our work. I don't think people would get that without the documentation.

MH: In all Negativland records, the packaging has always been an important part of the presentation.

M2: Mark was saying that it was a good thing that you made this statement about exploiting a tragic event in that it's at least clear that you view it as a tragic event. My immediate reaction was "Oh! The Royal Disclaimer!" Which is just like all the way through the process you guys maintained the disclaimer, "We never said this was true. We said we didn't know about it." I thought we suddenly had a breakthrough when you said we have exploited... but you were saying we have been *accused* of exploiting it. You're still sort of evading that point. Didn't Negativland exploit...

MH: Yes. Of course we did. I realize that we did.

DJ: Of course we did! But I hope that is not the point that people take away from the record. Because if we thought that was the main message, I don't think we would have recorded it. Everyone in the group was very uncomfortable about that aspect of it all the way through. Now that aspect exists. We are selling records that're based on a murder — using this subject to sell our next record. But there're other important points to be made that can only be made by exploiting this particular subject that the news media *could not resist* dealing with. They didn't resist so they took it down their path of cannibalization to an ultimate end. And that's what we saw happening and that's what we wanted to pursue. Not the fact of this actual murder.

M2: No. In fact the audio track of *Helter Stupid* doesn't exploit the murder. It exploits the media coverage of the alleged link between your song, "Christianity Is Stupid," and the murder.

DJ: And then it goes deeper into being about the media and violence. It's kind of a series of abstract ruminations and meditations.

HELTER STUPID

IS ABOUT THE

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GRINDER

M2: There is only one point at which you exploit the murder and that's the press release. And, in fact, SST Records could have let it die. And any number of the media people could have let it die... ignored it. It's obvious from the packaging that it was rather farfetched and it was ridiculously gullible for anyone to accept it without substantial fact checking.

DJ: You'd think so, but the fact is that very few facts are checked.

M2: *Time* magazine has narrowed down its fact checkers to a staff of three. It used to be a staff of 100.

DJ: If they read it, they believe it. That's how it works now.

M2: When the news media reads *other* news media, they believe it.

I'm probably a few steps more irresponsible than you in that I don't really give a shit if you exploit a person's murder of his parent.

DJ: You would if they were sitting here!

M2: Perhaps. But in an objective sense I don't, because media exploits them every day .

MH: That's part of our point. And what we're trying to address, too, is that these murders really happened. This is horrible. If you try to actually imagine what he did. He took an ax. He chopped up four other people. And it's like when you think about it...

DJ: In the middle of the night. While they were sleeping.

MH: It's beyond anything you and I can really comprehend.

M2: I'm for total liberty over moral restraint, but this isn't an interview about me.

DJ: In a way, every artist is above moral restraint in that they'll use everything as grist for the mill. We do. But the point is that you want in some way to distance yourself from the actual reality. You have to in order to do that. And that's what we tried to do with the total packaging of this. I don't want to meet the relatives of those people. I don't want to talk to friends of the family. It'd be very embarrassing. But I think the artist has to distance himself from that in order to produce anything that's of any critical import or value. 'Cause it always involves somebody else's feelings.

M2: I've given you this license and, in fact, I'm finding a level of defensiveness in you guys that I would just as soon dispense with, because you don't have to defend it, at least to this interviewer.

MH: The reason I was making the point about the actual grisly reality of it is because this is something that *really* happened in the world. What we were dealing with was a story, a fiction, the news... factual fictions as Don has called it... about this ax murder. We weren't dealing with what really happened. What has happened since is that, in fact, the news did get back to the boy. That I find really disturbing. The news got back to the lawyer and the family and the newspapers. And we've been called by TV stations in Rochester, Minnesota, and we've been called by papers in Minneapolis. Now the record's come out. And to me, it's getting to be too *weird* now. I don't want to think about that reality. We've tangled ourselves up in this thing now, and for the people in that town who knew the family and the boy, it's not just a story. It really happened. They know this kid, or they know his friends and his family. It's becoming increasingly disturbing and complex, when the intent of the record was to kind of settle it. The idea was that the record would be our statement and then we could say, "Ok, leave us alone. Listen to the record and that'll explain what was going on."

RUS: It's a case of the medium being the message. It's the fact that you put out a record based on this whole incident — and not what's actually on the record — that becomes news. So you're just further involving yourselves.
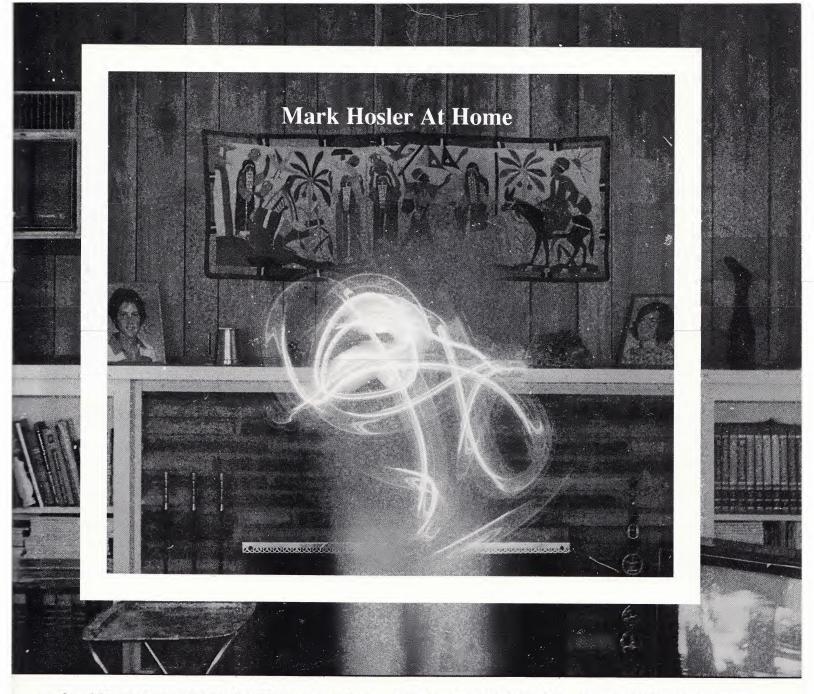
MH: I talked to one news guy. He kept asking me questions and I kept saying "Look, I don't really want to talk to you. You have an agenda. You're reporting on this for your town. You're gonna take anything I say and make it fit whatever your agenda is." And I said, "Really, all your questions can be answered by listening to the record. Listen to the record, read the liner notes. Listen to the record again, read the liner notes again, and hopefully you will understand what we're trying to say."

M2: They want you to give them that little sound byte of culpability so they can frame you as these heartless guys that exploited a murder. But what I'm saying is that the news, as infotainment, is totally devoid of *true* human sympathies and feelings. They use the sham of sympathy to increase the saleability of a product that they're selling. They have no moral high ground to stand on from which to judge you guys. And in fact they are the worst exploiters of every tragic crime and...

DJ: They have a lot higher ground than we do. They have a TV tower and we don't!

M2: That's higher profile. That's not higher moral ground.

Noam Chomsky called his book *The Manufacture of Consent*. So what the news media does is manufacture moral indignation. That's the point that I wanted to move to with this. What you guys did by this hoax is that you've completely drawn out everything back to *Helter Skelter*, and the linking of the Beatles songs to those mass

Mark Hosler At Home

murders, right up to the current Tipper Gore Mothers-Against-Dirty-Satanic-Rock-Songs situation. So what you've done, using the resonance of all this stuff, is show how they're chomping at the bit to present it as fact. And to make all these linkages that amount to shit.

DJ: You got it. It's a monstrous joke!

M2: This is the greatest rock and roll hoax since "Paul is dead."

RUS: More meaningful.

M2: I'd always suspected that the Beatles started the "Paul is dead" thing.

DJ: Oh you did? Well I thought they were responsible for those murders.

MH: Didn't the Beatles kill those people in Rochester?

M2: Has anyone looked further into the murder? Was there any argument about music between this kid and his parents? They report it as if that's a fact.

MH: I'll tell you a bizarre coincidence, or synchronicity as we say in California. As it turned out, someone who is in a band that's on the same label that we're on, knew that family when he was younger.

And, it turns out, that the boy had posters of other SST bands on his wall. This kid was into, you know, punk... hard core. So recently we found out that SST actually has David Brom on their mailing list. He used to order records from the mail order.

M2: So he had heard of you guys.

MH: No, I don't think he ever did.

M2: He at least saw your name.

MH: I don't know. At this point he knows who we are. We've heard that his lawyer got ahold of the record and now they're threatening to take us to court. So David Brom knows about us. Now I'm feeling even more weird. What

have we done? Imagine this one human being who did that, who has to live with that the rest of his life, *and* who has a record album that has his picture on the cover. It's really disturbing.

M2: I wouldn't be totally shocked to learn that David Brom gets fans of his own...

DJ: And he's writing a book...

M2: What discontented precocious teenager hasn't thought of dispatching the family?

MH: I never did!

M2: You never did? You loved your mom and pop?

MH: Well enough not to think of killing them. I enjoyed watching

other people kill their parents but I never considered doing it.

RUS: **I'm interested in the fact that it was entered into semi-accidentally. You didn't know it was going to come to this level of intensity. And you kind of followed the course of the disease, and now everybody is pretty well poisoned.**

M2: **When you go back to the original mutant, there's a shadowy figure in Negativland that doesn't turn up at their interviews and this incident totally fits my impressions of him.**

DJ: (laughing) He appears on the back cover.

M2: **Yeah. To me this whole thing somehow organically connects to him, and grows out of him, although the others have watered the plant and tended the garden.**

DJ: He's the member where the name Negativland *really* applies. He's like the archetypal negative sort of imp. It was he who started the whole thing in a sort of offhanded way.

MH: It was just that we had to cancel a tour because the tour was going to lose money and we can't afford to lose money because we don't make a lot. So we decided to cancel it in a more interesting way. And we'd already been getting some indications — from some other press releases — that the news media was not very careful in how it presented information. So we just did it as a sort of experiment. Richard came up with this press release.

He wrote it up and presented it to us, and we said, "That's kind of an interesting idea, Richard. Gee, well, let's see what happens." It wasn't like "this is a good publicity stunt," it was more like "let's let this little virus out and see what happens." Most of the group thought it would go nowhere because — as you were pointing out earlier — it seemed to be very easy to check out and find that it wasn't true.

RUS: **Before sending it out, did**

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you stop at any moment and imagine that it might turn out as peculiarly as it...

MH: Never! Never in a million years! And we certainly never thought that it would turn into our next record album.

It's such a strange thing to see. This person is reprinting this story and then this person's reprinting *his* story and it's growing and yet no one's checking to see if it's true. And it's just another story. But see how it developed. You're rolling from a lie to a very legitimate looking thing.

M2: **There also had to be a decision on the part of you guys that you weren't going to try to stop it, refute it, and tell the first interviewer that called you that...**

MH: But you have to realize that this was happening in front of us and we were just playing along as it happened, wondering "What do we do now?" We kept having meetings and eventually we decided that we weren't going to say anything more. That's it. We're done talking to the media. We will not stimulate the media in

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any way by making any comments because we want to leave this experiment as pure as we can. However, when the Channel 5 TV news called up... well, "I'm not passing *this* up. This is too bizarre." And they wanted to interview us in our own home. So we sort of very reluctantly agreed to let them do it.

I also saw the TV appearance as an opportunity to try to talk about some of the issues involved in how the media works. At the same time, we weren't ready to admit this was a hoax. But it seemed like a great opportunity to deal with electronic news. So we did during that interview. For two hours cameras rolled and we talked all about how the news is edited reality and how it's all sound bytes and it's sensationalized, and it's entertainment and, of course, they didn't use any of that at all.

They were promising us they weren't going to sensationalize this and they were going to try to address the issues that it raised. I could tell the guy was just bullshitting me because he wanted to get his story.

M2: **The headline of the press release was "Negativland tour axed at last minute." Similarly, Alfred Hitchcock said, "People think that I'm a monster" because he was a black humorist. The majority of people think they like black humor if they get it in little diluted doses...**

MH: I'll tell you something funny that happened that we didn't mention in the chronology. A month after we put out the first press release, we put out *another* press release saying there was an uproar going on because people were writing to Ann Landers saying Negativland's song "Nesbitt's Lime Soda" was giving bees a bad rap for stinging people in the tongue. The release also said that the Beekeepers Association of America was complaining about our song. We sent this out as a press release thinking, "This will stop it. They'll get the idea that this is a joke."

DJ: This is a series of joke press releases.

MH: And the bee release, of course, went nowhere because that wasn't of interest.

At a certain point, SST decided they no longer wanted to put out any more information associating themselves with this thing. They were concerned for themselves legally. We told the label to refer all phone calls to the band. We weren't asking them to cover for us. We didn't want them to compromise their integrity in any way.

RUS: **A lot of black humor is like acts of spontaneous inappropriate behavior that most people control... where you get this really weird twisted idea and it seems so great that you just have to do it. It's pure Id.**

DJ: I always like to do those things.

MH: That's part of how we work in the studio. We don't sit down and really write a composition. We have some ideas to start with and we're messing around and accidents happen. You stumble across something, some sound events and you say, "This is much better than our original idea." And the way we worked on this press release is really similar to how we work on our live shows or our records or anything else. We just sort of follow this thing where it seems to want to go.

RUS: **Stephen was referring to *Helter Stupid* as sort of being a documentary. My response to listening to the record was that it was much more intense, in an emotional sense, than anything else I've heard from Negativland. I don't know if that's something that I brought with me knowing the story behind the record. It's almost like a very intense jazz piece. It's got a lot of drive.**

DJ: That's partly because it's so long and unbroken and continuous. I

think we've done little things that are just as intense. I wanted to keep the same thing up all the way through. I wanted the overkill, which is like my impression of the media.

I think the structure is about information overload, although personally I don't ever find myself overloaded with information and I can listen to three things at the same time and actually comprehend what's going on.

M2: But what makes this piece so arresting is not merely that it's overload, because it's always overload with Negativland. That's the palette you're going to be working with, an overloaded palette. What you're going to paint is going to be different every time. And it begins with this incredibly gripping sound, so right away you're tense, you feel like you're under attack...

DJ: Did you play it backwards? (general laughter)

M2: That first gripping sound?

MH: For our readers at home: take the beginning of side 1 of *Helter Stupid* and play it backwards

!NATAS LIAH

M2: While I think of it, let me ask you this. Part of this whole Tipper Gore rock and satanism epoch is the backward masking controversy. This is very much an element of your piece.

DJ: Wait. Wait. Before you go on — you assumed that our palette was always overloaded and it was always going to be overloaded. That's not true and, in fact, our next record might be completely different and very relaxed.

RUS: Negativland in the Hearts of Space.

DJ: Yeah, that's it. We do that kind of stuff.

M2: It'll be your *John Wesley Harding* . . .

DJ: I hope it's as interesting.

M2 On "Stupid" the theme of backward masking comes up. Do you guys have any info on this? Is there even the *slightest* evidence that there's any reality to it?

MH: It's completely silly, right?

DJ: How could you understand something if it's backwards?

The people who are into this say that it *does* penetrate your brain in the same sense that sleep tapes do.

M2: Well, that's the contention, but I don't see any proof.

DJ: No, there isn't any proof. There's no proof that it works.

MH: I think you could argue that if, at a barely audible level, you inserted someone saying, "Kill your parents, kill your parents"...

M2: That's forward, though.

MH: I could see how that... I wouldn't exactly support someone doing that.

M2: That's how subliminal suggestion is supposed to work but...

MH: Don did a whole radio show relating to *Helter Stupid* and backwards masking. As I was listening to it I was thinking, you know, this is so silly. How could they even discuss this and not be embarrassed for themselves. The idea that anyone could even think for a second that you could understand that ...

M2: These are the people who believe that the beast will come and everyone will have to do business with the mark of 666. So, it's a very small leap for them to believe that backward masking is intelligible to the brain.

MH: ...hpargarap a ekil tsuj ,sdrawkcab ti evah tsuj dna weivretni eht fo trap emos esu uoy fI ?od dluohs uoy tahw wonk uoy, etunim a tiaW

> WE'VE ALWAYS MANIPULATED MEDIA SOUNDS, BUT NOW WE'RE ACTUALLY MANIPULATING IN THE SENSE OF NEO-YIPPIE PRANKS

DJ: I'm not sure whether the idea of what is supposed to be potent about backward masking is that you would be playing these records forwards and then you would pass this section that if you heard it backwards would be saying something different from what it is saying forwards — or whether the idea was that every record you buy, you're supposed to go home and play the whole thing backwards just to see if anything's there — and *then* when you hear it, it will...

M2: You know, all of this goes back to that great enemy of Christianity, John Lennon. Because it was John Lennon who began to use the sound of backward guitars, backward vocals. "Rain" was the first pop song to use that. In fact, it goes another step backward to William Burroughs, Brion Gyson, and Ian Somerville's experiments in London where Paul McCartney had rented them a studio. They were doing these kinds of things and that's how the Beatles came to be interested. Of course, it was for sound experiments, not for

subliminal suggestion or brainwashing or anything like that.

MH: Yeah. The first time I remember turning a tape backwards on a reel-to-reel it was really wonderful. "Wow, listen to this! It sounds great."

M2: Once you have that as another groovy guitar sound, it's going to be imitated. And then, decades later you have someone contending that backward masking is a way to do mind-fucking things with your music. Then, of course, people like Ozzie or whoever are going to start actually using backward masking. And naturally, on occasion they'll say "Hail Satan!" So when the Christians decide the point of backward masking is to indoctrinate people to Satanism, you're going to have people who are going to exploit that, aren't you?

DJ: Hmm, Hail Satan... good idea, you know. Why didn't I think of that?

MH: There's always an argument about whether the media causes people to commit crimes. Do songs cause people to worship Satan or kill their parents? And I think it's absolutely clear that kids who are growing up on a diet of *Dirty Harry* movies and cartoons and *Rambo* and *Friday the 13th* and *Miami Vice* — they have a whole weird inner vocabulary related to how to react and respond in emotional situations and crisis situations. I've been threatened at gun point by kids whose body language tells me they've picked it up from TV shows.

M2: The whole social ritual of heterosexual romance is learned from the movies.

MH: So the whole argument is ridiculous because it's really obvious that, in this century, the media is part of the sea we're swimming in. Obviously, it has everything to do with how you end up behaving.

DJ: It's definitely dangerous that

people are confusing reality with fiction. But you see that mostly in really young kids. I don't think it's really that effective with older people. To some extent, we're overly fearful about how much we can take in and deal with.

RUS: It's more of a direct factor in political behavior than in personal. It's like some of us can synthesize all this information and have it make sense. But that breakdown between what's real and what's not winds up being bizarre things like universal support for the invasion of Panama. And on the level of international news, it's all getting closer and more intense and more immediate and at the same time all the more unreal. And I think that has to do both with the overload and the increasingly flimsy way in which the news media contextualizes the stuff.

DJ: That's a good point. The media covers everything from intensely personal fictions to this vast view of the world. And what's pretending to be the news is almost as fictitious. Most peoples' view of the big world out there comes purely through television. But they have a lot of other reference points for their personal lives. They can look around and say "Gee, I'm not like Oprah Winfrey, you know? I'm really not." But they look at Panama, and they really don't know whether that's true or not, because they have no personal reference points. So they more or less accept whatever they're told.

M2: We can't even talk about the political aspects. I'm trying to get to the psychological aspects, my point being Hinkley could not have been induced to shoot Reagan merely by seeing *Taxi Driver* had his better judgement not already been destroyed through psychosis.

DJ: That's my point in the "Helter Stupid" editorial, you have to be a killer to be affected. You have to already be the killer before you

start buying this killer music.

M2: Then you look for a soundtrack. You look for the accompaniment that appeals to you.

GOING OVER THE EDGE ON LSD OR MEDIA

MH: I find that I'm able to follow certain things better if I'm a little bit over-engaged, if my brain is just a little bit over-engaged with a little bit too much input. I'm able to read the book better if I've got the record on and I'm eating.

DJ: It's just the modern way to get educated.

M2: Being able to enjoy your radio show "Over the Edge" [Don Joyce hosts a radio show on KPFA 94.1 FM, Berkeley, Thursday nights at midnight] is an acquired thing. Like the first time most people hear it, they find there's too much going on. It's too busy. It's too distracting, it's too

incoherent. It's too much of a cacophony. Then, after a while, they begin to get in the swim of it, like it, even want to participate and add themselves to it.

DJ: A lot of people have their first positive response by realizing it's sort of like a dream.

M2: The dream is, of course, the one altered state of consciousness that the culture can't dispense with.

RUS: Yet!

M2: So it's like with LSD. People's first impressions are often "It's too much. I can't handle it." You know — uh-oh! And then they get to a state where they're a little bit spellbound, still apprehensive, not completely grooving with it. And then, if they're lucky and they're not going to have a terribly fearful duration of the trip, they might even get to enjoy the sensory overload, because that's essentially what LSD does — inhibit the sensory inhibitors so that you get a sensory overload.

Being able to enjoy "Over the Edge" or Negativland and acid is

NegativLads

sort of the same thing because it's about being able to process all the input you're getting and have it be coherent. Which creates a kind of *physical* pleasure.

MH: It's interesting to me how different people of different ages and occupations react to what we do, because I've talked to some people who are in the computer hacker type of brain and they listen to Negativland and find it sort of pleasantly engaging — because it's got enough information in it. Rudy Rucker, in your last issue, was defining cyberpunk as something with a high density of information.

So to kids who are growing up with video games and computers in their home and all that, it probably just seems like easy listening.

DJ: Anybody who's grown up with a TV probably at least has the ability to understand what we're doing.

MH: But a pre-TV person like my grandmother, I don't think could ever, ever understand it or appreciate it.

M2: It's odd that you're using television as your reference point for what you're doing in radio and sound.

DJ: Television is an indicator of a certain age when everything became electronic.

MH: And you could change the channels.

DJ: Change the channels!

APPROPRIATION

M2: As art theory evolved in the 80's, the hallmark of post-modernism has turned out to be appropriation. And it goes back a long way. Somehow it seemed more important to use recombined images that were supplied to you through the media — through whatever source you got them from — then manufacturing or drawing something wholly new. And on an audio level, this is what Negativland came along and was doing. And not just Negativland, but Cabaret Voltaire and Throbbing Gristle — using a lot of found stuff, recontextualizing it.

MH: They all stopped doing it after a pretty short amount of time. It went from a foreground to a background element in a lot of that work.

M2: And then there's the pop diffusion of it, Big Audio Dynamite and a lot of the rap groups . . .

MH: Well, it's become *de rigeur*. And it makes me wonder about what we're doing, because when we started it was an area that needed exploring. Now, ten years later, we've kind of done a lot of that spelunking and it's now reached the point that found sounds, sample bits of noises, tapes off the media, are an accepted part of the pop music vocabulary.

RUS: It's always been legally controversial, and that aspect is reaching a crescendo now with your album and John Oswald's *Plunderphonics* and the De la Soul lawsuit...

MH: Right. But let me finish my point. It's no longer clear to me if we're really out on the edge any more with the work we're doing. It feels to me now like we're inside the fence, you know?

M2: I wouldn't put you on the edge simply because of your high visibility and your influence. I mean, the edge people are always working in obscurity.

RUS: You can't see the edge any more.

MH: It's really hard to see any totally new direction. It's all appropriation.

M2: When you started back in '78 - '79, did you right away begin supplying new contexts for found materials?

MH: Yes, even before I was recording — just fooling around — I used to mix recordings of game shows and TV bits and sounds I'd recorded on the street and glass breaking and tape loops and the radio was always on with some distorted AM channel...

DJ: We've become more and more willing to accept the actual content of the found stuff and let it stand on its own power.

M2: That's the progression I want to address...

MH: From the beginning, it was just what we wanted to hear. When Negativland started, I was buying a lot of independent music, and was starting to find out that there was this whole other world out there. I liked a lot of what I heard, but there was definitely something missing that I wanted to hear. So I started mixing in all of this stuff from my world, you know, my dog barking, the sprinklers on outside, and the TV set was always on. It was a totally naive thing really. And the more I started working with that, the more I started thinking about the content. So I started carrying around notebooks and writing my observations down. I'd go through all the commercials we would steal from radio stations, and I'd write down all my favorite lines and edit them out and filled up libraries, and Don, of course, has done that on a massive scale for years. He has a huge library of edited down bits.

M2: You weren't aware that psychedelic groups had done that first, including the Beatles?

MH: Right. No, I wasn't.

M2: So from 1978 - '79, these sounds were an element of your music, but you also provided a lot of the vocals and instrumental elements and stuff. But now, in 1990, we have a record with no vocals by you guys.

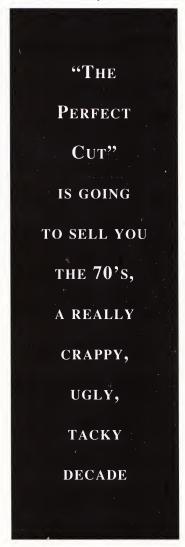DJ: Right, it's basically all made up of media.

M2: Which is not the case with *Escape from Noise*.

DJ: It's like we sort of disappeared in a way. The media, it's all just the media speaking for us now.

MH: There aren't even credits on *Helter Stupid*. We don't even say who made it anymore. Our own idiosyncratic personalities are much more in evidence on *Escape from Noise* — the songs, the lyrics, the little stories. And those are now gone.

M2: That's what I was wondering. I saw this record as an anomaly for that reason and I'm thinking that you guys have committed a bit of rock 'n' roll suicide — I suspect deliberately. You've done something other than a commercial shot. Because what is missing from this is hits — potential singles that can be pulled for college radio — like "Car Bomb" and others on the last one.

DJ: But *Escape from Noise* wasn't conceived to have any hooky hits either. It did really well on college radio but even "Christianity is Stupid" doesn't have "hooks." There was never any intention about that, one way or the other.

> "THE PERFECT CUT" IS GOING TO SELL YOU THE 70'S, A REALLY CRAPPY, UGLY, TACKY DECADE

M2: I see it as Volume 2 of *Escape from Noise*.

MH: As a matter of fact, if you look at the packaging of *Escape from Noise* and *Helter Stupid* you will see that they look the same. It's got a color photo in the center with text around it, and a heading across... We decided to make the design visually contiguous.

M2: I see "The Perfect Cut" as the search for a B side.

MH: Well the title is a bit of a black

humor since all of side A is in reference to an ax murder.

I think we're going to get pigeonholed as a media manipulation band. We've always manipulated media sounds, but now we're actually manipulating in the sense of neo-yippie pranks.

DJ: First, with *Escape from Noise* doing well — that broke us away from our earlier suburban noise band image, I think. Now with *Helter Stupid* we're really gonna get pegged.

M2: You always had a sound, but your sound has really solidified into *your* sound. It's not a bad thing.

MH: But this record's sound is actually based on mid-70's disco records and it has really bizarre production values. It's not modern sounding at all. It's not even *our* sound. It's all stolen.

M2: The B side is obviously a 70's revival parody.

DJ: That's one of the reasons we did it.

MH: Actually, that's a nice sort of subtext. "The Perfect Cut" is a comment on nostalgia as a commodity. Ok, now we're going to sell you the 70's, a really crappy, ugly, tacky decade. We can even sell *that* to you.

THREE BODIES OF WORK

M2: I'd like the voices of Negativland members to come back.

MH: Don't worry, they will. I've been working on writing song lyrics and singing for the last couple of years, but none of that work ended up fitting into what we're doing. I mean, there's always far more ideas than we have room to fit onto any given release. There's a body of work that hasn't really jelled yet. There's a body of unfinished work now that...

DJ: There's about three bodies...

MH: That are so different from anything we've done. And it's gonna be fun to put those out and confuse our fans.

I DON'T WANNA TALK TO THE LAWYERS

MH: I think we're gonna get in more trouble over *Helter Stupid* than I ever imagined. I mean, I sure never imagined we'd hear back from David Brom's lawyer.

M2: Well, are you litigatable in that connec-tion?

MH: I don't know.

RUS: Can we get into the legal ramifications of appropriation

MH: Well, I'm really ignorant about art history. So I just recently read a book by Calvin Tompkins called *Off the Wall* about John Cage, Rauschenberg and Merce Cunningham and all that. And it was fun finding these kindred spirits or kindred brain functions. It was fun to see that that stuff was going on many, many years ago.

DJ: There were always legal questions, going back to Andy Warhol with his exact same sized copies of Brillo boxes and so forth, but it came to nothing.

MH: It's become rampant now 'cause of technology.

M2: At first, Warhol was copying logos, painting replicas. But then when he started taking news photos and silk screening them into multiples and so forth, that's really a level of appropriation that's very analogous to what you guys do... using the actual thing. You don't do a parody of a news guy, you *use* the news guy.

MH: That was important to *Helter Stupid*. We decided we'd do this chronology and not make generalizations about the media. We decided we were gonna be really specific. We're gonna let the writer who was idiotic say his name. We're gonna use the name of the TV station. And that's getting us in trouble too.

It's very clear that the record is a criticism of the media. And I'm very interested in engaging with anyone who we're criticizing directly in the work. I want direct conversation. I don't wanna talk to the lawyers. I wanna be face to face with that guy and say, "Look,

what do you really think about what we did? Because we're trying to make a real point ."

DJ: I kind of like the idea of the news suing an artist.

Is culture something that can be used without permission, or isn't it? I think it should be. You should be able to use anything that's in the literal public domain.

MH: But you could ask where one draws the line.

M2: I've got the perfect hypothetical situation. What if a minute or more of one of your things showed up in someone else's record?

MH: It's been done!

DJ: And that was fine.

YOU KILLED THAT KID IN MINNESOTA

MH: The number of people who've heard about our connection with this story greatly outnumbers the number of people that will hear the record. The number of people that hear the record are going to outnumber the people who actually buy the record. The number of people who buy it will outnumber those who really listen to it and read the liner notes. The number of people who read the liner notes and really get what we're saying and think about it will be outnumbered by those who don't. So — in fact — what's going to happen is we're going to end up perpetuating this hoax and this myth about ourselves to a large number of people.

I mean 20 years from now, I'm going to run into someone who's going to say, "Oh yeah, you killed that kid in Minnesota."

SUBVERSION

RUS: I find the whole *Helter Stupid* project really subversive.

MH: Yes. But I don't think about it much, 'cause it's just what I do.

DJ: I don't think it's subversive. It's a little pimple.

M2: It's a pimple of subversion, but a pimple of subversion is better than the clean clear complexion of fascism.

MH: And KPIX is gonna pop it! •

"Are you sure this stuff's legal?"

PHOTO BY ROBERT PRUZAN

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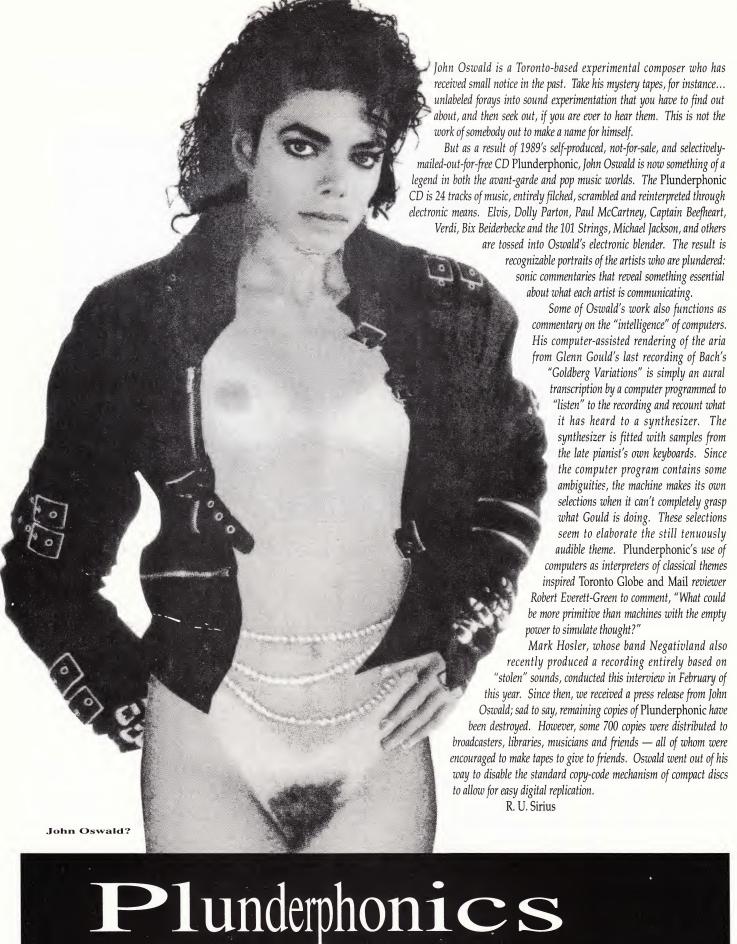
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John Oswald is a Toronto-based experimental composer who has received small notice in the past. Take his mystery tapes, for instance... unlabeled forays into sound experimentation that you have to find out about, and then seek out, if you are ever to hear them. This is not the work of somebody out to make a name for himself.

But as a result of 1989's self-produced, not-for-sale, and selectively-mailed-out-for-free CD Plunderphonic, John Oswald is now something of a legend in both the avant-garde and pop music worlds. The Plunderphonic CD is 24 tracks of music, entirely filched, scrambled and reinterpreted through electronic means. Elvis, Dolly Parton, Paul McCartney, Captain Beefheart, Verdi, Bix Beiderbecke and the 101 Strings, Michael Jackson, and others are tossed into Oswald's electronic blender. The result is recognizable portraits of the artists who are plundered: sonic commentaries that reveal something essential about what each artist is communicating.

Some of Oswald's work also functions as commentary on the "intelligence" of computers. His computer-assisted rendering of the aria from Glenn Gould's last recording of Bach's "Goldberg Variations" is simply an aural transcription by a computer programmed to "listen" to the recording and recount what it has heard to a synthesizer. The synthesizer is fitted with samples from the late pianist's own keyboards. Since the computer program contains some ambiguities, the machine makes its own selections when it can't completely grasp what Gould is doing. These selections seem to elaborate the still tenuously audible theme. Plunderphonic's use of computers as interpreters of classical themes inspired Toronto Globe and Mail reviewer Robert Everett-Green to comment, "What could be more primitive than machines with the empty power to simulate thought?"

Mark Hosler, whose band Negativland also recently produced a recording entirely based on "stolen" sounds, conducted this interview in February of this year. Since then, we received a press release from John Oswald; sad to say, remaining copies of Plunderphonic have been destroyed. However, some 700 copies were distributed to broadcasters, libraries, musicians and friends — all of whom were encouraged to make tapes to give to friends. Oswald went out of his way to disable the standard copy-code mechanism of compact discs to allow for easy digital replication.

R. U. Sirius

John Oswald?

Plunderphonics

MONDO 2000: You've actually gone to the trouble to make sure that copies of *Plunderphonic* got into the hands of all of the artists whose work you've plundered on the release?

JOHN OSWALD: Yeah. My overall game plan was to try not to be covert about anything.

There's lots of examples on the music market today of people quoting other people, but not quoting in the way that we're used to in literature — where there's a system for doing that without being accused of being a plagiarist. Everybody — for practical reasons or whatever — who's quoting others' sonic materials is acting like a plagiarist. They do the quote without giving credit for the quote. It can be argued that, for instance, if you hear a particular James Brown whoop you know it's James Brown, so we don't have to put his name on it. But I felt most comfortable with making sure that all quotations or appropriations that I made were properly credited. The package is entirely an extreme *quote* — everything in there is quoted and then transformed in some way or another. Everything was out front, okay. I didn't want to withhold these transformations from the people who are being quoted. To the contrary, I thought they'd be quite interested in hearing them. They might be interested and *offended*, or they might be interested and *pleased*. I haven't heard back from any of them. I've heard from the industry at large...

M2: You mean a major label in the record industry?

JO: In some form. And it's such an octopus it's hard to describe what tentacle has contacted me. And because I am in the middle of negotiating avoiding legal proceedings right now, I think it's best for me not to say exactly who. I've not heard from the artists themselves, but from what are called the fictional artists, which can be a corporation that has some sort of licensing control of an author's copyright.

M2: But if one of the artists on *Plunderphonic* is actually threatening legal moves to try and stop what you're doing, that's quite strange — because in your case, you're giving it away. It's pretty much like you made a bunch of cassettes to send to your friends. It happens to be that the people you sent them to are radio station people or writers, but it's mostly just people you know, contacts you have. What can they object to?

JO: Well, there's certain things in copyright law both here in Canada and the United States that say that any kind of copying of copyrighted material can infringe on the original copyright owner's right to control the stuff. There's no real clear rules, even regarding making copies at home, which seems like over the past years has been grudgingly acknowledged as being something that they'll allow. There was that case where Disney was upset with the fact that Sony VCRs existed at all, because people could copy the Disney TV shows or movies off the TV.

M2: Did that go to court?

JO: It went to court. It went to the Supreme Court, and I'm no expert on what the situation is in the United States now. I vaguely remember that it's now more or less okay for somebody to copy a TV show in the

privacy of their own home, but there's all sorts of other aspects, or details, involving whether you give that copy to somebody else. And as you may have noticed on CDs that have come out in the past year, there's sometimes a statement that the buyer of the particular CD is not supposed to *lend* the CD to anybody else.

M2: I haven't seen that statement. There's actually a statement to that effect!?!

JO: I don't have any specific disks that I've noticed that have it, but people have been telling me they've noticed it lately.

M2: Do you think that they have a leg to stand on with that sort of thing or do you think that it's absurd?

JO: Ah, I don't know. I don't know if it'll get worse. It's obviously an absurd situation, but sometimes absurd situations get more absurd. When I'm working on some sort of artistic endeavor, I ignore all the ramifications and follow my instincts for creating something that gets me excited. *Plunderphonic* was a result of that.

M2: Don't you think that this threat that has caused you to stop distributing *Plunderphonic* might be a bluff to scare you? If you just went ahead and continued to send them out to whomever you wanted to, how would they ever know? They're not gonna monitor your mail. They're not going to know that you sent yet another copy of it to somebody in France or in Knoxville, Tennessee, or whatever.

JO: Well, it's true. I could go covert and continue to do this, but it's not my nature. I feel much more comfortable just continuing to be totally honest about everything, at least for this project. I'm even quite forthcoming with

> John Oswald
> Interviewed by
> Mark Hosler

> I FEEL LIKE I'M ONE OF THESE POST-PRODUCTION MIXOLOGISTS THAT ARE BROUGHT IN TO COME UP WITH AN EXTENDED MIX

information to the people who are upset. In fact, I supplied them with copies when they asked for it, and answered questions forwarded to me over the telephone. It's quite funny. They say, "Do you know that you're infringing on a copyright?" I'd say, "Well, I've looked at the copyright law and I don't think I am." They say "We'll call you back." And then they'd say that they'd like more copies because various people are very interested in hearing it. And I'd say, "Well, tell me who they are and I'll send them to them." "We'll call you back."

M2: I don't care if someone wants to steal my stuff. Sure there will always be a certain amount of people who will be smart enough to figure out how to duplicate or break your protection code if they want to, or duplicate and make cassettes of your music for their friends or xerox your story, or whatever, but I don't think it's ever going to be that huge of a number. I like having a copy of a project the way the artist intended it, and I think there are enough people around like me to keep artists alive.

JO: Uh huh. I think you still succeed even when you don't get a direct material return on that sort of copying. Your success is in the fact that the material's good.

That reminds me of something I read about how recording and popular music artists works in Egypt, where copyright laws are such that there is no control over bootlegging at all. Almost all recordings that are made in Egypt are bootlegged from a small number of commercial recording outfits. These artists continue to make records nonetheless... for some reason or other. You can be a very popular artist in Egypt and receive nothing in royalties because nobody's buying. So the most successful recording artists live a comparatively meager existence, but they do have a viable existence because of live performance. They can go anywhere in the country, everybody hears their records and everybody wants to go hear them perform. This thing that's hard to control is not controlled at all there, and therefore they don't become rich. But, in a way, the system works out in that their fame spreads much further than it would if these electronic means of duplication didn't exist. I haven't gotten much in the way of offers to go around with a live performance of *Plunderphonic*. But the people that I've reached have made life a lot more interesting for me. I get to talk to people about my work. I'm getting appreciable feedback. So it

> ## "IF CREATIVITY IS A FIELD, COPYRIGHT IS THE FENCE."

works for me.

M2: I'm interested in your statement "If creativity is a field, copyright is the fence." You were saying that the fence is where people decide to define how far you can transgress before you've gone too far.

JO: Yeah. And then I make a particular point a little bit later on, which is "Theft only occurs when the owner is deprived of credit." Unfortunately, the fear that copyright holders will forbid access causes some borrowers to plunder covertly, making it pervade the industry. Pilfered riffs and snipped sounds proliferate, hidden in everything from patches to platinum product.

M2: Now, when I read that, I took it personally. I thought, does that mean that Negativland is really sneaky because we use so many bits that even if we wanted to ask permission, it would just be impossible?

JO: Well...

M2: A lot of it we don't even know whose voice it is when we get it.

JO: It's true that you haven't credited for the bits, and one thing you pointed out was the practicality of doing that, but some of your bits were so blatant that it would be fair to call them covert.

M2: Right. But I was wondering, in terms of your point of view, if we're not doing it the right way or if we're sort of screwing up here.

JO: Well, as you say, I like footnotes. So I'd like to see a complete bibliography on records of who's being quoted. But the overall issue is whether someone has the right to say, "No, you can't fiddle with my material."

M2: Don Joyce (of Negativland) has an interesting way of thinking about it. He suggests that we look at the history of folk culture, and how people appropriated art and music and so forth. So we're doing technological 20th century folk culture. And there's nothing wrong with it. It's just different technology. It's really the same thing that's been going on forever.

JO: I think the most interesting thing I've read about this is the Richard Stallman interview in the last issue of *MONDO 2000*, where he talks about attempts to possess intellectual property, and how ultimately nobody benefits from that except some people who might get rich. The interviewer asks him, "Well, how does somebody make money at all if you just make all this information available? He says, "Well, let's make a distinction between making *some* money and making a lot of money"... which brings us back to the first question that you asked me — before we started recording — which is why did I make this thing for free?

M2: Yeah. I wanted to say one thing about that, too. I thought one of the more interesting statements that *Plunderphonic* made was that it was for free. I thought, "My God, this guy has worked so hard on this project, paid money to master and produce a thousand CDs, and he's paying for the postage and everything, and sending them out for free." That added a whole other level to it, which I thought was really good. You know, it made your intentions really clean and pure. Of course, it also makes it a really ultra-hip item to get a hold of.

JO: Yeah. That's one effect that makes me a bit uncomfortable. It can become priceless. Copies can pass from one hand to the other with a lot of money involved and somebody receiving that.

M2: So the fact that you were giving it away added to the strength of the intent and the perception of the intent of the work. At the same time, I felt it was sort of timid to put it out and give it away. It was

kind of a little bit chicken in the sense of… "doing this makes a statement but I'm not really gonna stand behind it and say that this is a perfectly okay thing to do." Maybe it's just ok because you're not selling it. Whereas with *Helter Stupid*, we may get into some serious legal problems. But it was important to me that our record's very blatant about appropriation and makes no apologies for it. And yes, it's for sale. And yes, it's something that we can say is ours — it's our composition — because of how we altered the original material.

JO: It's true. I'm very timid about marketing. Mine is an intimate thing. I think that reflects my personality. Other projects I've been involved in, some of which are intimately viable, are also very timid in other ways. You note that I'm not even mentioning what they are now. Some of them don't advertise themselves at all, you have to find out about them some way.

M2: Like the mystery tapes?

JO: Yeah. But the main reason *Plunderphonic* is free is because most records *aren't* free. From the beginning, I planned that the CD would go to libraries and radio stations primarily, and to journalists in order to get the word out that this thing was sitting there at libraries and radio stations and you should call them up and ask them.

WHY DO IT?

M2: Let me ask you a common layman's question that I get asked, and you probably do too. Why don't you just go out and make a piece of music yourself from scratch that has the effect you want to have? Why take a Michael Jackson CD and put it in your sampler and sequencer and do something with that?

JO: I think everyone has a preferential choice of instruments. They'll gravitate to the piano or guitar or whatever. I do that also and, to some extent, I can articulate with those kinds of instruments. I'm very interested in sounds, and I'm very much interested in sounds I'm familiar with. And I think my choice to do the sort of thing I do is related to my experiences as a *listener*. Before I was a musician, I was a listener. I mean, working with the Beatles…my experience with the Beatles goes way back and there's something that seems to resonate more with playing with those actual sounds than with putting my hands on musical instruments.

M2: Well, they're environmental sounds, at this point. You hear music coming at you everywhere. There's a soundtrack of recorded music that is just as natural to us as the sound of birds chirping. Thinking back to a lot of earlier, found sound and music concrète things that were done with a lot of urban sounds and nature sounds — it's easy to place your music somewhere in that line of experimentation. You're responding to this music as part of the aural landscape.

JO: Edgar Varèse was excited by the sounds of airplanes and things like that. He had been around for long enough to have experienced the time before these things existed. He wanted to incorporate them into his music in some way, either by imitation or sometimes actually recording things like that. I have the same feeling about a lot of media. Media has changed a lot during our lives, but it is very much a part of our lives, and I think we both somehow want to incorporate that in how we work with things. And it's more interesting to us as musical material than melodies. In private, I make up melodies. I like to use the current technology to create pieces where I write melodies into computers and the computers can play them for me… play variations.

I like dealing with that sort of stuff. And some of the melodies I like very much, but I have little inclination to put them out in this world along with billions of other tunes. I find it more worthwhile to do things like *Plunderphonic*, where I'm taking a big risk and maybe getting in trouble for quoting people.

WHO OWNS MICHAEL JACKSON'S FACE?

JO: There's a lot of questions in the air about whether I can use a reproduction of Michael Jackson's face. Most people, myself included, are not clear on the extent to which we can use these people who exist in a virtual public domain in that they're public figures and they've striven to become icons and be available everywhere you look or listen. Whether we can respond to that as part of the environment — like recording the birds and stuff in musique concrète — this is part of the thing I want to explore in my music. Ever since I've been doing this there's been reactions of various people saying "We don't think you can do this." And I'm not sure if I can continue to do this sort of quoting because there's a lot of stuff in copyright laws that allows people to be very proprietary about certain aspects of what goes into music that they produce. But I'm not so interested in spending my time philos-ophizing about the limits of ownership. I'm pretty well exclusively interested in being creative. I see creative materials and I use them. And Michael Jackson's face, as you know, has become mixed up with this striving to be creative… is in fact a creation itself.

WORKING WITH MICHAEL JACKSON

JO: I was still working on the James Brown/Public Enemy piece, which didn't seem finished at all to me, the day before we mastered it. And James Brown gets sampled

so much, I used a lot of samples by people who sampled James Brown.

M2: The James Brown/Public Enemy piece is funny because it has the kind of sonic vocabulary you associate with that style of music, and yet the way you put them together, it's like someone ripped the records apart and threw your brains all over the place.

JO: I was constantly thinking during the James Brown piece that it wasn't just between me and James Brown. With a lot of these pieces I feel like I'm one of these post-production mixologists that're brought in to do some work on somebody's music and try to come up with an extended mix — where you don't have direct contact with the people coming into the studio and recording material, but you're working with that material in order to try to come up with something that's fresh. But the James Brown thing, I was constantly aware of the fact that all sorts of other people are doing that activity, James Brown is in jail now, and so on. And my commentary on those things kept coming out in working with the material. That's the only piece I think where I had this vague notion of making an active statement. The other pieces I'm working on as a lowly producer. In a perverse way, I'm trying to fill what we'll call the original artist's vision. So I'm working with Michael Jackson — and "okay, Michael, I feel what you're trying to do. Maybe I can help it along here."

I hear somebody coming up the street with some windows open in their van, and I can hear Michael Jackson playing "Bad." OK, that's Michael Jackson. That sounds pretty good but there's something missing. I wonder what it is? I wonder what I can do to make that sound the way I want it to sound?

M2: The "Bad" track on *Plunderphonic* is interesting for me because, although I've liked a lot of his hit singles, I'd never

heard anything off of *Bad*. I never heard that track. So I'm more familiar with that track the way you did it. When I finally heard the original "Bad" track, it was sort of the reverse of other people's experience. It sounded all strange and wrong because it was just this straightforward song.

JO: Yeah. What was your impression upon hearing the original?

M2: Oh, it wasn't as good as stuff I'd heard him do before.

JO: Well, one of my reasons for choosing that song is that it has quite a mechanical feel to it. I felt quite aware of an awful lot of multi-tracking, overdubbing techniques, picking out phrases, sometimes sampling or finding some way of repeating certain gestures and using sequencers and quantizers to recognize certain aspects of it.

I wrote a paper about Michael Jackson's process in making that called "Bad Relations" for a bunch of serious music tape composers and presented it at a conference. Jimmy Smith — the famous Hammond organ jazz muscian — was brought in to play two or four bars of the Jimmy Smith sound, and the lead off from that sounds really hot, really live. You hear it and say, "This is great." So they're trying to put together this mosaic of something that sounds live by very repetitive mechanical means. And they'll spend probably weeks putting the whole thing together, mixing it, and making something where the end result is something they're hoping will feel live to their audience. So these couple of bars by Jimmy Smith helps give the illusion of a live performance by a band. So I started getting into this thing and it doesn't sound live enough to me. There's something quite boring and dead about the track, particularly compared to earlier efforts by Michael Jackson. I really admire his voice, actually, and how he uses it. So I fiddled

with it in an even more mechanical way, sometimes using computers to approximate aspects of a group feel, in order to make something that made me feel more alive as a listener. And helped it sound like it had some sort of verve to it. So I think we are aiming at similar goals, but just different aesthetics or different concerns.

IMPROVING ON METALLICA

M2: One of the funniest tracks is the Metallica track. I've played that for other people and everyone pretty much falls on the floor laughing.

JO: Why is it funny?

M2: Well, I'm not the biggest heavy metal fan in the world, but the way you use it creates this very strong image... I imagine this band just continually ending their song over and over and over. I actually had an image of some really amazing avant garde heavy metal band that actually could perform that piece that you edited together. And I was imagining, what if someone could actually do a piece of music that way or compose something like that?

JO: Uh huh. I have the same image, and I think it's a constraint I sometimes put on these pieces. That piece is exactly like the Count Basie piece, in that I only had to tune up one stereo tape with no overdubbing or anything of that sort. But I pictured this band that can actually *play* all those changes. And I just think, well, this band is great!

I thought most heavy metal fans would like that piece. More often than not, when radio stations play it on their metal shows, they get phone calls from incensed fans.

M2: Because they recognize what it is, perhaps?

JO: Well, it's usually identified. I hope they recognize what it is, but I'm not sure. The average...

M2: Because to me, I don't know heavy metal that well, so it's very generic sounding, whereas if you were a Metallica fan, maybe you'd hear it and you're having your ears and your brain wrenched by some awful, evil person doing weird things to your favorite Metallica tunes.

JO: Yeah, I wonder. I knew nothing about Metallica. I knew they existed, but I hadn't heard them at all. But I'm very fond of heavy metal sounds. So I went into this store and the clerk said, "Well, try these guys out." And I thought it was the most satisfying recording I'd heard of a heavy metal band. I don't really care what they're playing, but I just like the sound of the instruments, and I very much like the sound of the bass drum. I quickly noticed that I didn't like what the drummer was playing at all, and I think my major compositional focus was on making the drummer sound good, having him play certain patterns... things that I felt were much more conducive to what the guitar guys are doing. So, in a way, I made a drum concerto out of it, and everybody else gets to tag along as a result. But I'm not familiar with the genre to the extent that...

M2: So you liked the timbre and the textural quality, the whole energy of it, but you decided that you were going to make this work in a way that you would like to hear it.

JO: Yeah.

M2: Is that a big factor in a lot of the pieces on *Plunderphonic*?

JO: I'm not afraid to fiddle with music that I like but doesn't quite satisfy me. There's a possibility that I can make something better of it. So I'm really trying to plug the holes in my own meager record collection. •

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Hip Hop

as Cyber-Apocalyse

Musically the 1980's will not go down in history as a decade of new ideas. The 1980's will be remembered for its fetish for nostalgia and rampant consumerism, with rebel artists struggling to provide marginal social commentary under the paternalistic guidance of record executives and Congressional decrees. The hyper-escapism and insularity of popular culture is merely a symptom of America's fear of the future, fear of technology, and in many cases, fear of reality.
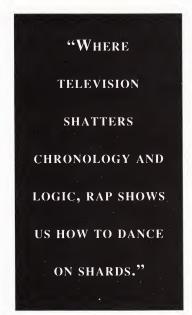
Yet out of the digitally recorded rubble of today's American culture, one indigenous post-modern movement is thriving completely on its own terms. The musical culture of rap music, known as Hip-Hop, has proliferated to the point where American tradition is forced to define itself in terms of this inner city phenomenon.

Once again the most impoverished element of American society has come up with the hottest, hungriest, hippest happening going into the 90's. Like youth movements of days past, Hip-Hop has survived by creating its own antithetical language, attitude, dress and criteria for success. But this time around, the tools of the establishment are being used to the rebels' advantage.

Musically, a technological revolution in sound production has occurred, and the most prolific example of its possibilities is in the production of rap music. The

By Rickey Vincent

surgical sound-grafting of sampling, the symmetric sound distortion of "scratching", the audio strobe effect known as "transforming" and a number of other recording and production techniques have opened an entirely new and vital medium which

serves as everything from news broadcast to pop art.

Hip-Hop finds the rhythm in the dissonance of the electronic media, makes sense of it, channels it and spits it back out of your speakers in the form of stories, boasts and lessons. This is not a mere sound splatter of random noise — Hip-Hop is the deliberate manipulation of beats and recorded sound inputs from any source into a musical experience with its own authentic rhythm and consciousness. Jon Pareles of the *New York Times* said of rap: "In its structure and content, rap is the music of the television age, and the first truly popular music to adopt the fast, fractured rhythms, the bizarre juxtapositions and the ceaseless self-promotion that are as much a part of television as logos and laugh tracks. Where television shatters chronology and logic, rap shows us how to dance on shards".

Most Americans are cursed to suffer in submission to the technology of their environment, but the Hip-Hoppers control many of the tools of the technological revolution, they are making millions of dollars, and dragging American culture kicking and screaming into the 21st century.

This relentless technical

revolution began in New York dance clubs in the 1970s, when disc jockeys began to gain fame manipulating records on a pair of turntables, adjusting their speed and mixing two songs "on beat" to create a new sound sensation all its own. They would then interject sound bits or lyrics from one disc onto another by rotating one record manually back and forth. This activity caused a "scratching" sound, and mutated the once sacred recorded song into a twisted snippet of percussion, signifying whatever message the deejay decides to leave in your helpless, dancing soul. On a good night the deejay would render a live band obsolete and relegate the history of recorded music to a grab bag of gimmicks. Meanwhile, these musical medleys provided the backdrop for the rhyming, hyped microphone styles of the club MCs and soon-to-be-professional rappers.

A few novelty hits gave initial popularity to the style in the late 70's. "Rapper's Delight", a 1979 single by The Sugarhill Gang was a 15 minute syncopated ego trip by three rappers, played over the (unauthorized) instrumental track to the disco hit "Good Times" by Chic. Chic eventually sued for copyright infringement, and a precedent was set. Hip-Hop became a showcase for forgotten R&B hits, often overshadowing the rappers claiming credit on the records, and leaving a controversy unresolved to this day.

There was technological innovation also, most notably the industrial strength beats of Afrikka Bambaataa and Soul Sonic Force with their hit "Planet Rock," Herbie Hancock's Grammy winning "Rockit" band, George Clinton's "Atomic Dog" and the Sugarhill Records rhythm section consisting of Doug Wimbish, Skip Macdonald and Keith LeBlanc, later to be known as Tackhead.

Out of Europe the efforts of Kraftwerk and Art of Noise in the early 80's pointed in the direction of hardcore beat with an irreverent european sensibility, but mysteriously, nothing was sustained, and these pioneers gave way to stronger competition.

The vanguard of innovation today is claimed exclusively by the Hip-Hop pioneers — urban black youth in complete creative control of the most sophisticated sound production equipment available. And there is no reason to believe that their talent or their popularity has peaked.

Rap music has had to graduate past the status of worthless fad, written off by the media, silly trend mocked by the media, and finally as an ungainly underground portrayed as dangerous by the media. But nothing has stopped Hip-Hop from rising to the top. Rap sales are the fastest growing of any music style, rap stars perpetuate their mystique at their will, music awards have made new categories, and rap video programs such as *Yo! MTV Raps!* consistently command the highest ratings.

The largest exception to this general acceptance by the music world is the lack of airplay on "black" radio stations that appear to fear for their sponsors more than their communities. Nevertheless, many rap records sell in the millions with or without airplay.

Hip-Hop survives, enduring the same contempt from the older generation that Rock 'n' Roll dealt with in the 50s. *Parents let go, 'cause there's magic in the air/Criticizing rap shows you're out of order/Stop look and listen to the phrasin' Fred Astaires/And don't get offended while Mase dos-e-does your daughter* — De La Soul, "Magic Number".

The inability of the non-musical establishment to accept and appreciate rap music has opened the door to potential conflict. How America swallows this noise may signal a social schism of unprecedented proportions, another pop trend, or a creative crescendo

capable of enlightening an almost totally neutralized population.

Civil rights leader Jesse Jackson concedes: "Hip-Hop may very well be the most radical expansion of our culture since jazz." Africa, one of the members of the Jungle Brothers explains, "rap is a positive disease, and it's going to get beneath the skin of everybody." Pete Townshend of The Who, in his acceptance speech into the Rock 'n' Roll Hall of Fame summed up rap music as the new rock by concluding"... it's not up to us to try to understand it. It's not even up to us to buy it. We just have to get the fuck out of the way."

Rap's popularity may be, in part, due to the graphic realism that is inextricably associated with Hip-Hop Music. Taking off from the 1982 Grandmaster Flash and the Furious Five hit "The Message," Hip-Hop has carved out an identity as a messenger of truth. In addition to humorous storytelling and boasting, a segment of rap has taken on a new Afro-centricity that serves as a springboard for a new type of documentary:

They got me rottin' in the time that I'm servin'/tellin you what happened the same time they're throwin'/ 4 of us packed in a cell like slaves — oh well/ The same motherfucker got us livin' in his hell. — Public Enemy ("Black Steel in the hour of Chaos")

Hip-Hop has a firm grip on the streets. Its audience has an identity and a voice that may never die. If music is to reflect its environment then the electronic impulses we experience are going to be a part of the musical environment we will hear. Sense must be made of these sensations.
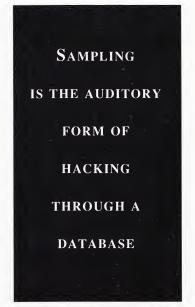
Hip-Hop is now under pressure from its futurists as well as traditionalists, because rap music has at its foundation the sampling, looping and signifying of found pieces of classic and near classic pop music and other sounds of the 20th Century. This foundation is threatened by problems involving copyright infringement associated with nearly everything available to sample. Legally, sampling for private use is a violation of the law inasmuch as xeroxing a book is. When a writer uses the slightest bits of a copyrighted book, this law is rarely enforced. But when an unauthorized record is made from an old one and money is made, someone is going to pay.

The legal problems arising from the relentless sampling wars are beginning to take their toll. In the early days of Hip-Hop, music was sampled or otherwise featured in relatively extended form, enough to justify the effort to acquire permission for use. Little scratches or teasers were not considered long enough to warrant payment. Besides, most Hip-Hop records did not make much money, so nobody took much interest in the tinkerings of these kids.

When samplers hit the streets, however, records began looping notes and noises from anything recordable. Often with no respect for history or continuity, any part of a record: lyrics, drum rolls, screams, pops; any number of instantaneous effects would be sequenced into a song. In the massive 1988 hit "It Takes Two" by Rob Base and DJ Easy Rock, a high pitched squeal hits on every other beat throughout the song, creating an intoxicating hyperactive sensation, as there is no opportunity for letdown or release. This is Hip-Hop at its best; time and form are ripped away and everything has a beat.

While it may be the new style, this madness creates havoc with producers and publishers, because everyone wants a piece of the action. The "authors" of every squeal, cymbal crash, rhythm or recognizable sound effect feel entitled to remuneration.

Most established producers today have to take their finished product and play it for the original artist or publisher and agree either

SAMPLING IS THE AUDITORY FORM OF HACKING THROUGH A DATABASE

to a flat fee, or a statutory royalty in which the original artist may receive a penny or so per sale for a few seconds of their sound. This was originally considered chump-change. If, however, a record sells a million copies, one cent adds up to ten thousand dollars, which is getting expensive. Jimi Dright Jr., "Chopmaster J" of the innovative Hip-Hop group Digital Underground says it's all a game of cat and mouse. "This is how you can work it. You can call them, or you can wait, and they can call you."

Rick Ross, managing director of Delicious Vinyl, one of the most successful hip-hop labels, said "Record companies are building in costs for samples because most publishers are asking for a cut nowadays... We thought we made the Tone Loc album for $10,000 but with the royalties it's cost us between $180,000 and $200,000."

This is ironic because Hip-Hop grew as an inexpensive way to make dance records — certainly cheaper than a band. Now it's come full circle. Studio musicians traditionally just charge a producer a flat fee, and give up the rights to the music they produce. Occasionally, a well-known musician would claim a percentage of a song, but that process itself motivated producers to seek out new, undiscovered talent. In some

cases, hip-hop producing has become as expensive as hiring an all-star backup band.

This has dangerous implications for the philosophy of postmodern sound art, as well as the hip-hop scene, for if the regulation of artistic sources begins to proliferate and define its own bureaucracy, then censorship is not far behind.
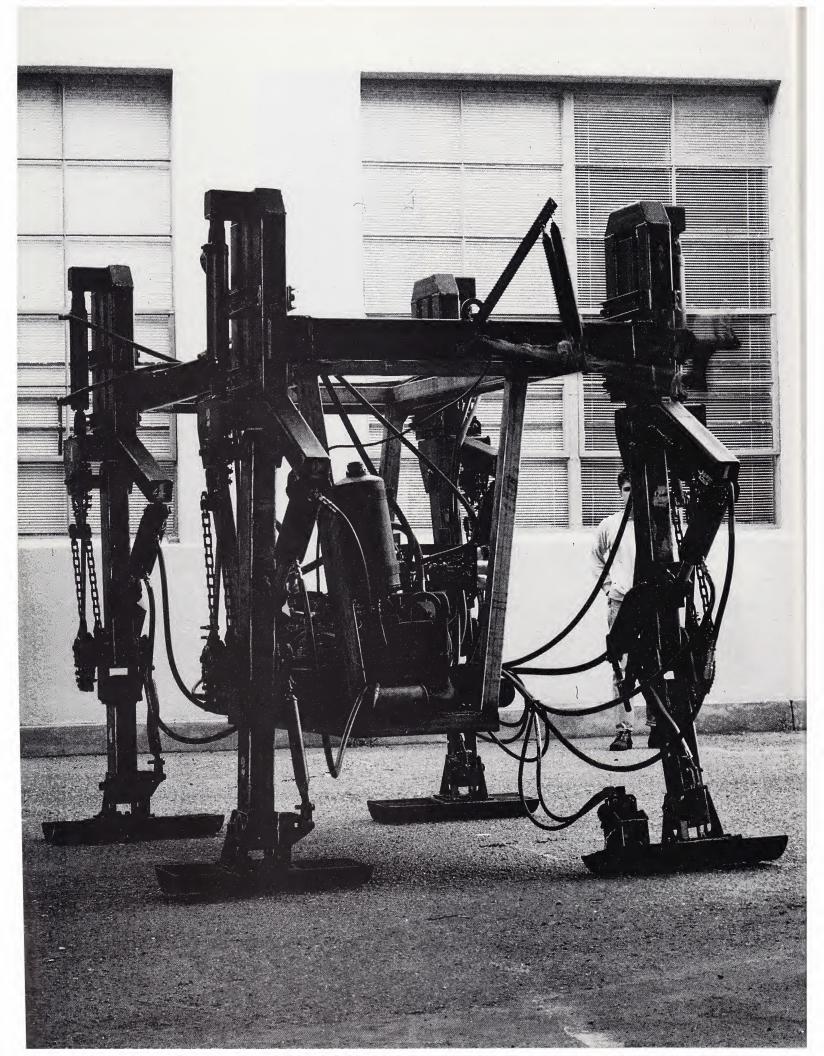
So who has the right to manipulate electronic images and sounds? When is art theft? When is theft art?

Sampling is the auditory form of hacking through a database. A certain functional anarchy is involved which one might argue is good for the soul. But what's good for the soul has not always been good for capitalism. Sampling is a multi-million dollar business with far-reaching implications for the way we view art and the world around us.

For Hip-Hop, a sampler is not a toy, it's an important instrument in the function of the rap song statement. Like the rural blues a century ago, or the dissonant fury of be-bop, Hip-Hop thrives through the desires of America's black dispossessed, and paints a bittersweet picture of America from the bottom up.

While sampling has had other uses, it's young black kids, stigmatized by violence, who are flying past the technocrats who used to claim that "those who conquer technology shall be the master race." Their self-aggrandizement was premature. Look at the evidence.

William Gibson's famous cyberpunk statement that the street finds its own use for things is surely true. And armed with an African tradition of rhythm and vitality, black youth are *obligated* to become masters of these postmodern noise makers. Nevertheless, the only claim they make is that they can "rock the house." Who will pay attention to these "masters" of post-modernism? •

ABJECT VICTIMS

Mark Pauline

OF

Gives Equal Time

A

To The Dark Side

BRUTAL IRONY

(As interrogated by
John Shirley, Jude Milhon,
Andrea Juno, Queen Mu
& R. U. Sirius)

In what was called the Movement, I had friends who built bombs to the spec of those times: counter-bombs, anti-antipersonnel weapons designed to damage only the property of those who owned the country. If those bombs never found their appropriate use (who could ensure that no human would be hurt?), still the half-realized urge to use force against the users of force was formative for some of us. In fact, an intractable fondness for weapons, crowd scenes and adrenergic stimulation may remain unnoticed in a lot of us. Huddled in the wretched refuse of Mark Pauline's shows, in spews of choking orange smoke, holding my ears against explosions... I got that old feeling.

If this is psychodrama for us oldtimers, what the hell is it for the young and stylized? And why do we all report back next time, to be re-menaced with bodily harm and tricky cleaning problems? Asking Mark is no help. He will answer every question in 25 thousand words or more, all cloudy. He is earnest, open, a downhome kind of guy who just likes to blow things up. Antonin Artaud? Well, he may have read him in his teens, but the Theatre of Cruelty didn't shape his life. Yes, he was brought up Catholick, but he bears no grudges. And don't mention deconstructionism to him, even as a joke.

He seems uneasy about being called an artist. He prefers to see himself as a worker with — and for — machines, as the man who recognized that a backhoe is crying out to be fitted with an actual hand — as the man who wants to see that backhoe just hanging out, enjoying its leisure. And, as the liberator of machines, he hopes that when his mechanical children supervise the planets they will remember him with gratitude — may they never end up imprisoned in museums!

Ironically, Mark is not only internationally known as an artist: he's a cult god.

Word-of-mouth and wrenchingly tragic posters promising MACHINE SEX *or* BITTER MESSAGES OF HOPELESS GRIEF *draw him overflow audiences. These he mystifies and bullies, sluicing with stenches and flying glass, blackening them with unmetaphorical smut — and they leave his shows glittering, as if from the arousal and satisfaction of an unacknowledged paraphilia.*

John Shirley — who conducts the majority of the interview here — calls out the same feelings. His writing is dark and funny, full of deliciously righteous violence. Much-published, celebrated as a cyberpunk madman, he is the most explicitly leftist of the top science fiction-fantasy writers. In a field long secured by right-libertarians he is an exuberant combatant, a soul-and-conscience millennial postMarxist — Harpo faction, of course.

Jude Milhon

JOHN SHIRLEY: Do people try to psychoanalyze you guys? Like to indicate that your show is about some innate hostility that you've got and not a representation of any kind of social reality? Do you get that kind of shit?

MARK PAULINE: Yeah, all the time. I mean, I think that the typical reaction's even less analytical then that. And in that sense, I find any kind of reaction that indicates people have thought conscientiously about what they've seen is encouraging. I'm quite happy to deal with anybody who's got an intelligent question or any sort of assertion whether it be a positive or negative response. I assume that reactions to these shows are personal, or based on some personal theoretical developments and so forth. So I can't take it personally...

JS: Even if they reduce the shows to being an outgrowth of your personal neuroses?

MP: I think that's fine. Because to me, it is a very *positive* outgrowth of that. Think about it. Typically, neuroses don't even have an outgrowth. Typically neuroses just keep folding back upon themselves, ad infinitum. They're just very uninteresting excessive behaviors that, by definition, don't go very far. So I'll be the first to admit that there are engines that drive what I do that are very akin to the things that drive any kind of obsessional behavior. So that obsessiveness is a tool that I use. How does anybody get themselves to do anything besides sit around and smoke cigarettes and drink beer all day? Any way that you can trick yourself into doing anything is valid.

JS: You spoke, in a previous interview about the Copenhågen show, about wanting to bring things that were submerged in Copenhågen up to the surface. You observed that the city has all these grotesqueries, gargoyles, built into its architecture. And you were saying that they were like representative of the suppressed inner realities of these people. And I've gotten that generally — the sense that you guys are disgorging some normally suppressed reality. That's like your mission.

MP: Particularly in the Copenhågen show, that was a mission. I mean the mission was sort of conferred upon us just by dint of what Copenhågen is like. I mean, in that kind of social democracy where wealth is evened out — most people are of the same middle class level — there are certain aspects of people that have to be repressed, there are

THERE ARE

ENGINES

THAT DRIVE

WHAT

I DO...

OBSESSIVENESS

IS A TOOL

THAT I USE

certain urges, certain peaks of creativity and self-reflection that become atrophied or repressed in a culture like that.

And SRL being there... I mean, we were kind of a wild card. We needed to do something that would really lead to like a more intense self-examination, more so than a show that I would do in America, which would be based on some kind of specific social theme. It seemed like that was the place to hit them. And as it turned out, it was.

JS: It was particularly about achieving freedom from the restraints of civilization, to paraphrase you. Or was that...

MP: That was the Amsterdam show.

In Copenhågen, we went there a couple of weeks early to get a feel for what it was like. I talked to people there endlessly. And I was just like a news reporter asking "what about this part of your culture... and what about this?" et cetera et cetera. And obviously, I only had time for a sort of superficial view. So I wanted to go after the jugular vein. What is it really? Well a jugular vein stands right out. What stands out is that all their monuments are like these grotesques, these really expressive kinds of things. But everybody is so glum looking. Why aren't they more happy? There's a lot of alcoholism there. And everybody was telling us, "Oh, it's because we're so repressed." Over and over we'd hear it... this weird self-deprecating thing.
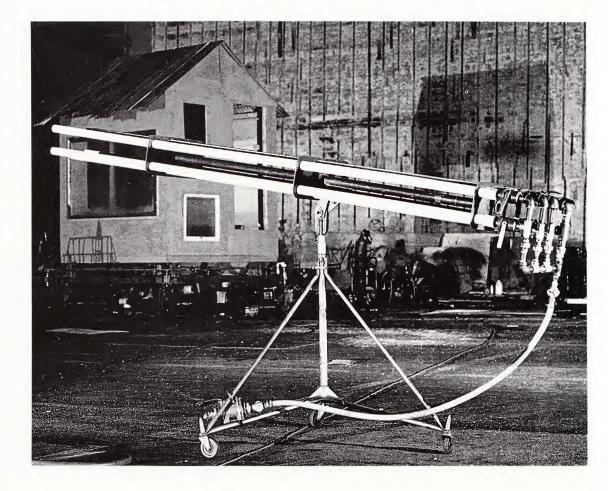
And then there's the mermaid, of course. The whole identity of the City of Copenhågen is tied in with that little mermaid... which is *so* weird. This tiny mermaid. I mean, it's only a couple of feet tall! How could it happen? Why would that happen and what does that mean? What are they grasping for when they have their identity based on something like that?

And then, Denmark is really a kind of dairy agriculture. They like to think of themselves as peaceful agricultural farmers. And it's very clean there. There're no smells there.

So how do you deal with this? O.K. We gave that little mermaid two heads about seven feet tall. We made it out of a cow carcass and put it in this device that would ride around and have its little legs crossed right next to a vat of boiling rotten cheese — about 200 gallons of rotten cheese with a huge coal fire underneath it. And we had these huge spires built. And all the structures were very angular, very much that kind of Danish-modern look. We had these wooden doors on an octagonal pedestal, all very regular, very organized, with an eight-foot-diameter glass skull on top. So there were smells and there was this huge tugboat in the background that had pounds and pounds of this smoke powder. Then we had a boat that we dragged out of the

wharves that had like a Viking disaster scene. And we put on this really intense emotional scene at the end.

It was all to bring out this idea of what their forebears had been and to ask why they were so sapped of that vital energy. And the response was incredible because nothing much out of the ordinary happens in a place like

Copenhågen. So the media really latched onto it. This has real hype value. Ten times more than in America. So I did probably twenty interviews. So I'd be saying stuff like, "We're building this glass head because the psyche of the Scandinavian peoples is so opaque. We're putting this glass head on top of this octagonal pedestal to show that your psyche has been trapped by this regular structure that your culture imposes on you." And it was like, no one says stuff

like that there. People were going, "I never thought of that before." They just got really excited about it. And I'd say, "You don't have any smells here. So we're gonna have all these smells." They go, "You're right. It's too clean." And on and on.

So by the time the show happened, everyone was going, "Whoa! Who are these Ameri-cans!?" And we had a sold-out crowd there and we just played a lot of tricks with them in terms of how they could see a show. And a lot of the people said stuff like, "This is a valid critique of our culture. We should think more about these kinds of things. And why are these Americans coming here and saying these things and why don't we say them?"

JS: Did you get any shit from the authorities?

MP: Aw, they loved it! The fire

department participated in it. It was like a free-for-all for them. They gave us like twenty pounds of smoke powder. They gave us these explosives. They were *into* it. They were shoving the stuff off on us. Then at the end of the show, all the firemen were there and they rushed in and started spraying everything with hoses. They were like screaming and laughing and stuff. They went to this tugboat that we had on stage... they went up there with axes and started smashing in the windows. It was this anarchic scene going on. These guys in uniforms and these really weird hats. The fire chief... his attitude was like — "There's never any fires here. And it's really great that you could come here and make all these fires for us to put out." They came to the party afterwards.

JS: Who paid you guys to go there?

MP: The government.

JS: They don't have a Jesse Helms over there.

MP: They don't have a defense department either. There's nothing in that culture to soak up excess capital and stuff.

JS: You guys had an encounter with some squatters in Amsterdam? A riot?
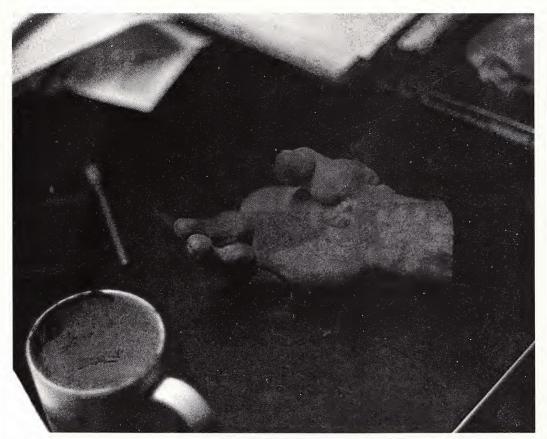
MP: Well, they came to us before they rioted. And they said, "Look, you know all these techniques and stuff. The police are gonna raid our place. We kinda know what day it's gonna be. It's probably gonna be the day after your show.
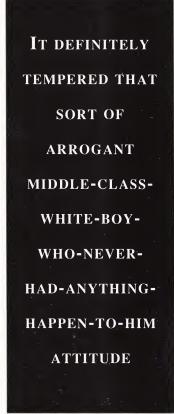
Is there any advice you can give?"

I said "They're gonna tear the place down, right?"

And they said "Yeah."

And I said, "Well, why don't you play some tricks on them? I think you should use our smoke machine" — these big military smoke generators from World War II. It makes about 1,000,000 cubic feet of smoke per minute.

I looked over a plan they had of the place. There was a place where the cops couldn't get at them right away because there was a river. I said "Just put it right in here. It'll smoke out all these streets here." I said "They won't be able to get you here. Then you can burn the whole place down. Break out all the ventilation windows, pile up paper stuff, get like about five gallons of oil in there, put sticks and wood in there, then put rubber tires on top of that. And then get fire

IT DEFINITELY TEMPERED THAT SORT OF ARROGANT MIDDLE-CLASS-WHITE-BOY-WHO-NEVER-HAD-ANYTHING-HAPPEN-TO-HIM ATTITUDE

extinguishers and fill 'em up with gasoline. Get all this stuff ready the day before. Pour the oil on so it soaks in there really good. Have all the windows in the back broken out so that they can't see and make a good draft. And break holes in the floors so the flame moves up through the floors really fast. And they said... "O.K." And they *actually did it!*

They tried to get us to help. But then the people we were hanging around with told us we really shouldn't be involved. So we watched. The police came. All these people were on the roof — and like it's 20 buildings all in a row. Two big rows of four-story buildings about a block and a half long. There were a few hundred police. And the squatters turned on the smoke generator. And like the police couldn't see and they had to retreat.

In the meantime, all these people came out on the roof and started throwing rocks and pipes at the police. On the ground, these people attacked the police, too. Ten or twenty police got hurt. And they had to leave. They just backed away. And they had a 55-gallon drum of the smoke oil there — enough for almost an hour. It just smoked and smoked and smoked and smoked.

JUDE MILHON: Was anyone filming this?
MP: The police were. And we got a copy of their video. We said that the squatters stole the machine from us.

Everyone got out in the confusion. All the squatters got out the back way. And then the next day we called the police and said that someone stole our smoke machine and we had to get it back. And we thought that it was in that squat. And they said "There's no smoke machine there." But actually they were trying to keep it as evidence.
ANDREA JUNO: Did they give it back to you?
MP: They didn't give it back to us. Actually, somebody just gave me a

brand new one yesterday.
JS: This is the first time that your kind of artistic reality, or surreality, overlapped with social reality. In a way, you were mixing with a revolutionary action.
MP: Yeah, well... nobody ever asked me. I never get asked to parties either. I don't go to parties very much. I probably would if I got invited.
JS: So when the FMLN comes to you and asks you to help out in El Salvador you could...
MP: I might. I mean I try to stay away from politics 'cause I don't feel like it goes far enough. It's just bogus on some level. I think organized politics is a contradiction in terms. I think that real work gets done in a much sneakier way. If it's something intense, it gets done when no one knows about it.

The kind of politics that I would support — if I did it, I wouldn't talk about it. I mean, there are things I do that could be construed as very political, but I...
JS: Liberating pieces of equip-

ment...
MP: But I just keep them to myself.
JS: At any rate, the event with the squatters in Amsterdam seems to me...
MP: That was nice.
JS: The border line between artistic statement and direct political action blurred. It doesn't usually happen that way.
MP: It doesn't happen here. People aren't committed enough to do something that crazy here.

I get asked to do things here. I get asked to bring machines down when these idiots are going downtown to protest whatever. I say "When you get serious about doing something with these people. Don't play games with 'em." They're not playing games. Why should anyone play games with 'em. Otherwise ignore 'em. Because what they do is gonna affect you in a way that's not really that significant. It's set up that way.
AJ: We already know about protests. We have a categorized

system and structure of how to do a protest. Enact some little political play or some little drama. And because everybody knows exactly what to expect, it has no effect.

JS: It's like the body politic sweating. It performs a function for the government.

R. U. SIRIUS: It's like the people in Copenhågen and in Amsterdam could be more responsive to what you're doing, 'cause there's a kind of innocence there where they're able to react to things. Where in the U.S. people just kind of go, "Whoa. More noise in the void. Cool."

MP: You get a lot of pretty reasoned reactions here too.

RUS: You get intelligent, complex reactions. But it's comparatively inactive in a way.

MP: Yeah, that's true. Things are disassociated in this country to a much greater degree. An act and its implications don't really connect with most people. It's the same as Copenhågen. It's the same as in any of these other places. It's just there's an arrogance of desperation here because it's so subtle. It takes a lot more to analyze what goes on in a structure like the American culture than it does in a place like Copenhågen. I mean things are kind of cut and dried there. It's clear what's happening. It's aboveboard in a way. Here it's like: whatever it's supposed to be, it's really something else.

JS: We're so stoned on media here it's hard to see past it.

JS: Do you ever feel like you're doing a kind of shamanistic ritual? Because, to me, the machinery that takes the form of animals has a kind of animistic quality.

MP: Yeah, well I think that that's optimistic. I like to think things like that, but then I'm hopelessly optimistic about all kinds of things. The reason that I take the route that I do is probably just kind of a sad statement on the way things are

here. It's almost like the only hope you can have has to be irrational. For me anyway. As a political act it has to be very nonspecific. Every time I make a definitive statement and every time these shows say something definitive, they also contradict themselves on many, many levels. That's intentional. That reflects my view. I think that's a very mystical point of view. To me these shows are totally mystical. Every hard fact, every solution that's solved by an equation, boils down to being in the right place at the right time, and understanding your relationship to things around you in a way that you can't logically explain.

JM: As a member of your audience, I can tell you that the sensation that we're putting ourselves in physical danger by being there is definitely a factor in your shows.

JS: People go to horror movies.

JM: No no no. This is different. You can actually get killed in Mark's audience. Things can go wrong. And at least you're going to be subjected to a whole lot of discomfort and fear.

JS: You said in the videotape (*The Will to Provoke*) that it was necessary to victimize the audience.

MP: That was a specific instance that I was referring to in the videotape.

JS: But isn't injuring someone inevitable eventually?

MP: I don't think so.
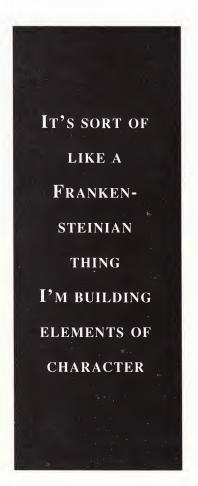
JS: Because when I watched the videotape, it looks like you guys push the envelope a bit with respect to the audience. There's this one part where you're moving a nasty grasping pincer machine right up into the audience, and it's going very rapidly. If they happen to move the wrong way at the wrong time too close to that thing, it could get their jugular or something.

MP: In the past, the shows were

much more dangerous than they are now. But they appear to be much more dangerous now than they used to be. And that's because I think in the earlier shows...

JS: People died. (laughter)

MP: No. In the earlier shows, I wasn't aware of the technology, and how to really control and harness these kinds of things. I mean, basically you're dealing with a situation where you've got a bunch of machines that are part of a show that's going on and people are watching it. And you have to have something to pull them into it. And you don't have an act in any traditional sense. You've gotta have something to keep the flow of action and hold it together. And in the past that had to be some pretty intense stuff. I mean, that was how I hurt my hand, really. I was using unguided rockets with high-explosive heads. If they hit you they'd kill you. I mean we used those in shows in the first couple of years. And machines that spewed like raw gasoline...

The last show there wasn't any real explosive stuff at all. It was like all these gas-powered explosions that *feel* much more intense. They're bizarre because it's like this 6-barrelled thing that's firing out these shock waves. It hits you and it knocks you back in your seat. And it's like — whoa!, that kind of fear you get from something totally unfamiliar. I don't even completely understand the principle behind it.

JS: You were kind of lucky the first two years.

MP: I would have to say that it was dumb luck that a lot of things didn't happen. I'll admit that. But on the other hand, I did have this thing happen to me. That really changed my attitude. Basically it was a realization that there are things that are extremely dangerous to the point of foolishness. And then there are things that are merely hazardous but that can be controlled by people with some reliability. I decided, well, I'm not gonna be building any more free-flying helicopters. I'm not gonna make rocket motors that are like Stinger anti-aircraft missile motors any more. I'm not going to make TNT and dynamite in my back yard any more. I'm gonna stick to stuff that's a little bit safer but that will provide better effects.

JS: You took the injuries yourself that would have otherwise gone to the audience.

MP: Yeah, it definitely tempered that sort of arrogant middle-class-white-boy-who-never-had-anything-happen-to-him attitude.

IT'S SORT OF LIKE A FRANKEN-STEINIAN THING I'M BUILDING ELEMENTS OF CHARACTER

JS: So do you make anybody sign a waiver before they see a show?
MP: It's something the presenters like to do. It's just hype too. You can't sign away your future rights. It's only a ruse. Ask any lawyer.

JS: There's a tension between the deliberately planned elements and random elements and that tension is part of the show. It ultimately becomes a tension between clear symbolism and this kind of runaway dream imagery. Do you draw inspiration from dreams? Or do you look for dream imagery in your shows?
MP: Completely. Absolutely. I completely believe in the inadvertent solution of all problems because I'm not a particularly rational person. I deal with systems that were probably developed by very rational, money-making, profit-taking people though. I think real hard about things and I try to understand it and figure out some linear solution. And then it just comes to me later. And it has nothing to do with any of the things I thought. The shows, at their best, work the same way. It's like you plan for them, you're trying to get a certain kind of effect, knowing all the while that these chance occurrences that always happen when you get that much activity at the same time are gonna make or break the show. I mean, that's the pressure. It's like, if it happens am I gonna see it? That's why I don't even run the machines at shows any more. I really just watch for those things. I watch for the signs that this is how the show has to go. Like in *Illusions of Shameless Abundance*, I saw that big old arm coming to try to knock down these burning pianos and save people from this searing heat. It struggled over there and valiantly knocked

these pianos about. And I said, "This machine has to sacrifice itself." So this thing that I spent months on... I said, "Jonathan. Send it into the flames." He goes, "What?" I said "Send it into the pianos." And we just sacrificed this huge behemoth at the end and it was like the ultimate example of that kind of act at its best.

JS: To what extent are these mechanisms sculptures? I mean, when I first heard about it, somebody told me it was a form of kinetic sculpture. Do you buy that?
MP: If you're gonna give me money, and if you're gonna give me money because I did sculpture, I'd say that they were sculpture.
JS: For you personally, to what extent are they sculptures?
MP: Oh, I don't know. I mean, what does that mean? Does that mean that they're designed to be separated and put in some sort of glass case

somewhere and disassociated from the rest of the world? Or any other kind of world?
JS: Sculpture can be interactive and ephemeral but still be an object of art.
MP: I guess so. For me the definition of sculpture is tainted by the past and by the history of what sculpture has been. Unfortunately, most sculpture, like most art forms, has been out there serving the power structure. And I like to think that we don't serve those things.
JS: That's kind of a dialectical stance. But you...
MP: A dialectical stance is very important. Because to me, you're really working in opposition when you're trying to do something really new or really different. Anyway, I think that they're performing machines. I think they're gonna be sculptures when

I'm dead. And you'll be able to look up a lot of data on them — "They were in this show and this show and that show."

JS: To me, they're at least compositions. Particularly the ones that employ animal parts, or semblances of human parts, mixed in with purely abstract mechanical things — they have a compositional quality that's inescapable.
MP: But so does an F-16 jet. You don't think that they designed those jets because they worked better that way. They designed them because they look kinda sleek and sexy. I mean that's why they make those kinds of things. Unconsciously. Any time you have an object where function is the important thing, the thing that you're working for is this incredible form. What are you dealing with? Why does a tree look great? Does it have to grow like that to work as a tree? It's just dealing with the forces of nature and it can't help but look really amazing. That's exactly the same reason why a jet looks... that's why those machines look great. They're organic things in a way.
JS: Your stuff as sculpture would be kind of analogous to deconstructionism in literature.
MP: You're on shaky ground now. I don't know what to say about that. I don't read much theoretical stuff.

JM: What are you trying to help these machines evolve into? What do you see as the result of this evolution?
MP: To me, it's sort of like a Frankensteinian thing. I'm building elements of character. Each machine reflects the character of the people that put it together. And I sort of design the machines based on what I feel is the character. I'm an engineer. I can look at a device and I can think

what the mind-set of the person or people that invented it were.

I'll give you an example. The big arm, for instance. I've seen these back-hoe arms, and I thought, these things are so stupid like this. They should be alive. You got some big fat guy with a cigar and dirty tee shirt running these things. What a horrible thing. It should be disassociated. It should never have to work again. I should get one and I should make it not work 'cause they're always working. They're never sitting around doing nothing. You know, I should put something on so it can't dig. It needs a hand. It needs to be able to pick up stuff. It needs some way to know where it is so it doesn't have to have someone else driving it. It needs a computer, or encoders... position sensors on the joints. That's the way I looked at it. And it really was very anthropomorphic. I mean it wasn't anything physically very different from a back-hoe arm. But with just these little touches and ⁀rimps and a little bit of grooming turned into this whole weird ⁀eature that served a real ⁀ ⁀ificant purpose in several shows.

JS: You took away the generic qualities of the machine and gave it an individual quality.

MP: Gave it a personality. It's like the closest a machine can have to intelligence is to have personality. I think that that's like really the best that you can do with these machines, that's the most intelligent life that you can give them, have them be very idiosyncratic, and have a real personality.

MP: Part of SRL is just taking things and concentrating them. Really squeezing them much closer together than they would normally be... components, ideas, possibilities, until you come up with something that's a surprise.

JS: Is SRL your life's work?

MP: Well so far. I don't know. You sort of edge yourself into a

situation, and this situation feels right. I mean I eased into it and I've been doing it for ten years and it continues to fulfill the things that it originally fulfilled for me. It provides me with something that is always changing, something that really is very challenging, something that I can always feel free to maneuver in. I don't feel like I'm part of a world that I've always hated, the world of commerce or whatever you want to call it. But I'm not idle. I can move. I can work. I can feel like I'm alive, feel like I'm connecting, so...

JS: So that's the backdrop that makes it possible for you to do something that you care about and survive at it.

MP: Exactly. And as soon as it doesn't feel like that, then it's not Survival Research Laboratories, it's something else.

JS: You've talked about drawing people away from the defense industry and incorporating them into things like SRL. Like stealing those technicians and their skills. You guys are, in a sense, co-opting the technology of violence.

MP: It's starting to happen. We have people that work on Star Wars lasers that bring us into their labs and it's just like on a shopping tour. And we just get parts and equipment. There are people from laboratories and companies all around here who just take stuff and bring it here to SRL. And they work with us. I mean I don't know if they feel their jobs are that unethical. They work there because they get to play with some pretty interesting toys. 'Cause it's a challenge. It's equipment you wouldn't get any other way. And it would never get paid for except through the Defense Department. But things are changing very rapidly. I don't think I'm gonna have to try very hard to get new people that are involved in that world 'cause the whole defense-science consortium is collapsing. In

a year or two there's gonna be literally thousands of unemployed research people with incredible skills.
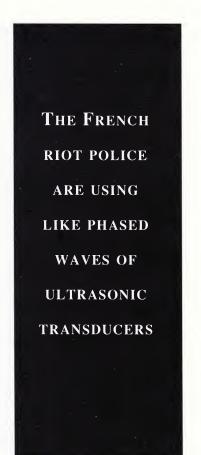
RUS: It seems like that strange kind of experimentation has to carry on in a sense... find some outlet.

MP: I'm afraid that there's gonna be someone who comes up with a germ warfare agent and wipes out a few cities. Just some bored guy who doesn't have a job any more. Where'd all the plutonium go at Lawrence Livermore? You know? They don't know where it went. Or Rocky Flats. I know what happened. Some employee slipped it out the back and they've got it somewhere. There's stuff like that everywhere. And I think these incidents will be one of the things that comes to pass because of the demilitarization of industry.

RUS: There'll be all these military-type people getting together and starting their own small, independent, personalized militaries. It's already happening.

MP: The funny thing about the military is that even *they* have trouble dealing with their own disinformation. And that's why they're so out of it. They can't even do their little conservative policies well cause they're so spaced out. They're trying to figure out what's real and unreal.

JM: Do you have techno dreams?

MP: Oh, of course. I daydream. All I ever think about is machines. It's sort of a massage technique... kind of a mental massage technique.

I've been doing research into these low frequency acoustic generators that make extremely high-powered low-frequency sounds. I have all the papers, I have about 400 papers and articles. I've determined that it's not really that dangerous if it's done a certain way and it's really a very powerful tool for mood manipulation. And it shows the power of inaudible sound waves interacting with structures. It's also something that nobody's ever done before. I just read this stuff and it really psyched me out. I just can't quit thinking about it.

QUEEN MU: What kinds of modalities does it access?

MP: Well, simultaneously... this is based on a number of reports... you'll feel very giddy, your face will flush red, you'll be very dizzy. If you're drunk, you'll become much more drunk. And you'll lose about 20% of your score on IQ tests and about 15-20% of your ability to balance yourself.

RUS: Maybe we should advertise this as an alternative to all those people who claim their machines *increase* your IQ.

THE FRENCH RIOT POLICE ARE USING LIKE PHASED WAVES OF ULTRASONIC TRANSDUCERS

MP: It makes your chest cavity vibrate. It makes your eyes shake so much that you can't see clearly any more. And it's basically like being grabbed and shaken hard.

AJ: (Sounding appalled) So are you gonna use this for your show?

MP: Oh yeah.

RUS: Do people shit in their pants?

JS: Don't you think you may be crossing some kind of ethical boundary?

JM: What are you trying to achieve?

MP: Well I see it coupled with other kinds of effects at the shows. I mean it's not harmful to you. There's hundreds and hundreds of studies. I've got several hundred studies by all these different people on the kinds of effects.

It was tested on people because NASA and the military were looking at using it in weaponry and they were worried that it was gonna screw up their jets and rockets in flight.

RUS: Don't the French riot police have it on tap for crowd control?

MP: They're using a thing that's really dangerous. They're using ultrasonic... like phased waves of ultrasonic... You saw that in the news, where this guy had binoculars with these ultrasonic transducers beaming out 2 different frequencies and he fired it at a horse during a horse race and the horse just tumbled out of control. Then they caught the guy. Basically that's what the French Police have and those *are* dangerous.

They make phased waves of ultrasonic transducers that are two different frequencies that are slightly off each other by like thirty Hz. What happens is you experience a really high frequency scream that you can't really hear but can really damage, rupture, your insides if it's on a long time. It's very debilitating, and coupled with a really intense low frequency, you experience it as two separate tones. You experience it as 16,000 and thirty Hz both at the same time. So you're getting a high and a low frequency blast. And it basically makes you crack. You just fall down.

JM: We're all missing the point. What are you trying to do?

MP: With this particular device?

JM: You're trying to move your audience. You're trying to alter them...

JS: Project an idea through a powerful mechanism.

QM: There was a concert given twenty years ago at that temple near the Exploratorium (in San Francisco) testing out infrasound. It was like an early new age music experiment that would get people high. All the pets ran away. Everybody got real uncomfortable and had to leave. I think it was about 1969.

MP: Every part of your body has a resonant frequency. That's why you have to be very careful what frequencies you use. The really dangerous frequencies are in the area of 2000 Hz. Anything above 500 Hz is extremely hazardous.
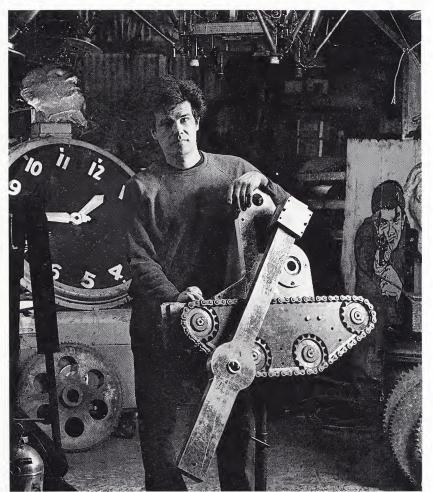
JM: What would your ideal effect be if you could get the technology together to do it?

MP: Well I'm going to use it as a sort of emotional transducer. We'll be making the audience feel like puppets in a very *particular* way. They'll be watching a scene and — whether they want to, or usually would, or not, they'll feel happy about it... like, "Whoa, that makes me happy!" Then they'll feel kinda dizzy and kinda like they're drunk. It's just a way of like...

AJ: Does this affect children in the womb... pregnant women? They can be pretty fragile about just those kinds of things.

MP: Well, I mean, I haven't even gotten it built yet. I have the prototype ready. It'll be tested exhaustively.

JM: So what you're after is to produce an effect with your stage act, and then amplify that sonically.

MP: I'm trying to do the same thing that sound does in any kind of production. I'm using sound, but rather than being music, I'm using sound to evoke the same kind of emotions that music typically would. But I personally believe that the beneficial and *even* the manipulative effect of music has been co-opted and has been made essentially useless now. And that's why I'm trying to think of other ways to use sound that get that same effect, that have the kind of transformational potential that music used to have. I'm reducing it down to its basic common denominator, and using the pure tones as a way to get a certain kind of feel. I guess the difference is that I'll be making devices that make up to 30,000 acoustic watts.

To give you an idea, a police whistle blown as loud as you can is 1 watt. And your voice is 1 milliwatt, 1/1000th of a watt. And if you had a 100,000 watt sound system, it'd only put out about 3000 watts of acoustic power.

JS: My advice is no pregnant women at the show.

AJ: I agree.

MP: It's safe but, believe me, it's gonna be incredibly disturbing. •

Phil Alvin:

The Parallel Mathematics Of A Blaster

OK, so I was wrong. The Blasters do have roots in rockabilly, blues, and early Chuck Berry—Bo Diddley rock and roll, with classic jazz undertones and streetwise punk overtones. But Alvin is sheer eclectorama. His solo album, Unsung Stories, mixes traditional 20's-style jazz with blues and avant-garde elements. One side is performed with MONDO favorite, Sun Ra, and the other side with the Dirty Dozen Brass Band.

Phil is also involved in the weird and wonderful discipline of mathematics that explores — in the words of Alvin's friend and compatriot, Rudy Rucker — "the secret architecture of the universe." When he's not touring with The Blasters, he's teaching math at Long Beach State College, Long Beach, California

It isn't hard to get him to talk: verbally unstoppable, chainsmoking cigarettes, he exudes a strange combination of Dylanesque protopunk swagger, didacticism and eccentricity.

We have 3 hours on tape bordering on inspired monologue. Topics range from music history, folklore, computing, & mathematics, to the economics of the Corporate Music Behemoth.

Here we'll stick primarily to music… But stay tuned to future issues for Phil Alvin's theory on how to achieve post-biological immortality.

R. U. Sirius

THE MATHEMATICS OF A BLIND LEMON JEFFERSON MOAN

MONDO 2000: I know that you're involved in wild abstract mathematics and science and high technology. Yet you're known publicly for doing a very roots, rhythm and blues kind of music. I mean if I hadn't been introduced to you, I probably wouldn't have thought, "Hey, let's go talk to Phil Alvin of the Blasters. He's probably interested in the same shit we are." Now Bruce Sterling recently said that when a cultural trend gathers enough momentum, it creates something like a tremendous thirst for its opposite. So like high tech music in a sense gives birth to a trend towards acoustic folk music…

I DRAIN MY EMOTIONAL SYSTEM WITH A PARALLEL MATHEMATICS THAT'S ANALYZABLE IN THE LANGUAGE OF CELLULAR AUTOMATA.

PHIL ALVIN: Well, OK Music that is played by human beings without any instruments at all — the song voice — is an extremely complicated instrument. It's so complicated that we don't have computers… these little serial processors do not have the capability to successfully mimic the sound and vary it and then to embed qualities like emotion. I mean samplers, even, are limited. They do not have the mathematics of human emotion right now. I claim that such mathematics exist.

The intricacy and delicacy of the mathematics of a Blind Lemon Jefferson moan or howl, the delicacy and intricacies of the harmonic

structure of Duke Ellington, are woven together under the joining of two musical traditions, which moved themselves through time by the placement of notes.

Now when you have multiple generators, multiple instruments, multiple persons playing multiple tones on an instrument, a drummer who has two, three, four, even five instruments to slice up time with and to weave himself through time — that's complexity!

The one thing is to slice up time with rhythm. The other thing is to lay rhythm on time — call it percussion. And then to lay notes on top of each other and move through time — call that harmony. And those two things always implicitly involve each other. There is some tonality to the percussive instrument that you hit. There is some distinction in the time when you're hitting the notes that resolve each other.

A BRIEF HISTORY LESSON

PA: I'll tell ya what American music is… where it came from. Now remember that the first slaves in the United States were not black. The first slaves were white indentured servants that were brought from Britain. My family was brought here that way. We had people here in 1542. They lived in the slave quarters. And when they moved them out of the slave quarters and brought the blacks in, the treatment of the indentured servant and the treatment of the slave were fundamentally identical for a while. There was a time when there was a great deal of interface between them. These people — the indentured servants — were hillbillies, you understand! And I think this fundamental blend has defined what American music is. It was really pretty much taken care of before the Declaration of Independence.

There were people playing in blackface back in 1799. And blackface was not designed to

make fun of people. It was so that both races could play together and not offend what was a fundamental racism inside the system. It was a method of employment for the poor whites and poor blacks.

See, back to your question… these things are valuable artistic patterns. Time is not of any importance… in terms of what's modern or whatever. The record companies — which incidentally started as furniture companies — have given us the idea that music generates such massive amounts of money that there always has to be something really new… that the value in something is in its newness. Now that had never been true of music. Might be true of some things… *is* true. But you go show me an *original* song. I mean *really*. The first musician we know of, the first great epic poet, Homer, didn't write *The Iliad* and *The Odyssey*. Homer was a troubadour. Homer happened to be the greatest singer around at the time. He just happened to have been there in all his grandeur. He was communicating for the people. He was just the singer.

Let me take you back and show you where it all began. It begins with the economics of the furniture companies, warehouses and trucks. People who wanted to sell record players and suddenly found out that they were becoming record companies. They have a $100 billion industry that the

musicians share in less than 10% of. The way that Homer got paid is the same way that I get paid. Publishing royalties. They came from the king. It's all in the publishing royalties. That's why Bob Dylan — as he told you — killed Tin Pan Alley. Given enough promotion, I can make you know anybody today. But it's very rare that you find songwriting, writing as poetry, writing as musical harmonic structure capably expressed to full emotional capacity all in one person. Very rare.

The music industry doesn't give the singer any control. Look at Elvis Presley. He was the most successful, right? He died kissing the place where the urine drips down the toilet, filled with reds. His lip just hung up right there on the porcelain. I'd say something was going wrong there.

M2: Going back to Homer, you're saying that he was just repeating the mythology of his time… taking what he heard and editing it?
PA: Saving it through time. He's a disk!
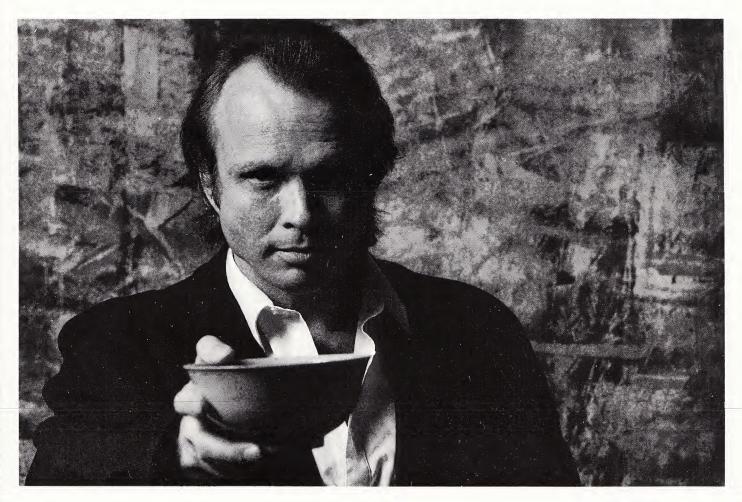
Recording… it's only 110 years old. 1878 Edison invents a record player. When Edison invented the record player, they were on cylinders. The reason they were on cylinders was because Edison did not encode the wave of music by moving laterally, left to right. He encoded it by going up and down. It's called hill and dale recording. So you had to have a lot more pressure then. And it had to be played at an angle. You also didn't have the two sides at that time. Since you were digging down into the record, you had to make the records very thick.

Now I'm gonna tell you a few of the major furniture companies in the U.S. at this time. The Victor Furniture Company, the Columbia Furniture Company… the furniture companies wanted to sell this wonderful invention. Why? Well they had the distribution all throughout the country already set up. The furniture industry, out of Providence, Rhode Island, was really the big thing in America at that time.

Now Edison wanted a huge fee for his invention. I think he wanted something like 60%. He wanted much too much for those guys. But Edison was holding out, knowing the power of his invention. But it was a mistake. A big $100,000,000,000 mistake for old Tom Edison, tinkerer. Because both in Europe and the United States, people started to develop counterpatent ideas to get around Edison's patent. Well, it didn't take very long. Not surprising. I mean I always hail the first approximations of theory and Edison did that. I have some affinity for that. You know you're out there fishing in what was an absolutely empty void. And then you come up with something and you now have to decide that this is the end — it's done! That's a hard thing to do — out of an empty void, you pull something up and say "That's it" and then patent it. Anyway, by around 1902 there were a few different variations on the acoustic thing. By 1903, I think that both Victor and Columbia had working patents.

ON TECH MUSIC

PA: As a musician and a mathematician I ask everybody that I see playing hi-tech music, "Why don't you do mathematics, and then *play* music like I do. I play music. I drain my emotional system with a parallel mathematics that may well be of interest to analyze, but is not analyzable in that language. It's analyzable in the language of relational data base maybe, cellular automata, cellular processed systems. Matter of fact, it very well *is* analyzable under those conditions. Learn what that means, if you're so interested. If what

you're trying to do is expand your depth and human emotion, be a human and play an instrument! Now that doesn't mean you can't play an electronic instrument. That doesn't mean that you can't use sampling techniques and all of that. But don't attribute any of the powers to that thing. *You* play that. Give me a rock, man. I'll sit over here and bang with the rock and sing — I'll hit a rock and sing and you play synthesizer — and I betcha I can get a bigger crowd. Now what am I doing? Am I tricking somebody? Or am I using a much better computer? These kinds of computational things now, these unintelligent... all it does is make it easy to have variation. See, it's very constricting to work within a discipline. It's very constricting to know that you have boundaries. It's much easier to just pull variations from everywhere. It's much more difficult to find the important skeletal pattern and structure. There are revolutions sometimes that open up whole new vistas of structure. And we're going through such times right now. But I don't think that the avant garde lives in tech music. The avant garde lives in mathematics, computational science, that's where it lives. So if you play hi-tech music, you'd better be *real* good.

HOW TO UNTANGLE

PA.: I have to untangle tonight when I perform. What do I have to untangle? How many times can I think about my mother's death, even if it's in the background, in order to grab enough power to save my ass on stage? That's not very intelligent. So you've gotta go a little

farther than that. And that's not an easy game. The ability to draw upon your own emotion has to transcend specific experiences. I'm sure that's true in any performing art. Also, when you're performing all the time and you're on airplanes and in hotel rooms, you're removed from the world. My emotions slow down. And they expect my output to increase! Bands are supposed to make a record every 18 months. Where did that come from? Did Homer make one? I don't know.

VERTICAL INTEGRATION

PA: I'll tell you about the artist's relationship to the record companies... the Big Secret. It's not really a product contract, it's a *promotional* contract. It's the promotion that costs money. And I don't make money off the records. *They* make money off the records.

I get promotion. Then I go out and play live. Right now, in the United States, there are huge vertically integrated monopolies. One of the big stories of the 80's is the vertical integration of the entertainment industries. That started under Reagan. They did their job under Reagan, and the job is done. That job is done. From the street level distribution to the top management decisions, to every part of production inside the thing, it's vertically integrated all the way down the line.

But we know now, our kids know. I mean, when I was in high school it was a little more discrete. Now it's very discontinuous. There is corporate music — and you know who belongs — and there is noncorporate music and you guess who belongs. And every now and then there's a little random kind of a discharge that

goes between the two. But they just go up for a second. It's a finite impulse function.

M2: Looking at the top ten now is very depressing, particularly compared to like the mid-60s.

PA: Yeah, it's the top fifty — they're all fifty years old. But they should be because that's where our population bulges.
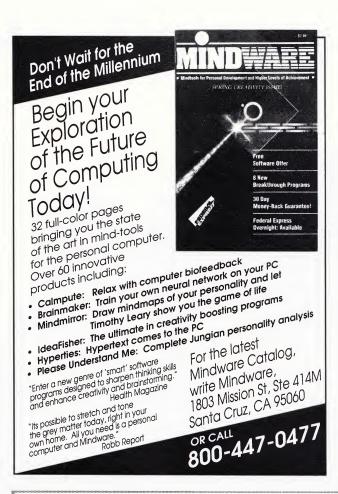
A GOOD FIRM DIELECTRIC

M2: A lot of the other people we'll be interviewing about music in this issue are into totally exploiting electronics. And they're, in a sense, accessing the existing sound vault of recorded music, weird noises, talk... whatever. And it's very intellectual. They're making collages. And that's becoming a big part of the non-corporate music scene.

PA: Well, I always said that the walls of defense would be very weak. You know there's an old saying that James Clerk Maxwell forgot to enter at the end of his thesis on electrodynamics. If you wave a dollar bill in an electric field you can change a plus to a minus. And it really depends fundamentally on the dielectric material. And you need a good firm dielectric. I have a full collection of Stockhausen and I've loved him for fifteen years. I've made a record with Sun Ra. He's my friend and a spiritual soulmate. The distance between Sun Ra and my theories about music is very minimal.

Now, with multiple sampling techniques and with keyboard devices — or whatever kind of input device you have — you have the ability for an extremely large dimensional space of music. You control an extremely large number of components inside music. That makes your job much more difficult. So you should certainly be able to control a small space well. So if you tell me that Blind Lemon Jefferson's experiments aren't worth analysis, it's like saying you don't need to read Newton. And if you've got access to the entire database of recorded sounds, you'd better come up with something pretty astounding! It has to be really fucking good.

Now when we're making a Blasters song, we have words you can say at a certain section of the song — "give me a Chuck Berry feel here," "give me a Lucky Millanderish thing here" — you can name things that had no meaning in 1926. Now they've become elements. They're nested phenomena of evolution. And the evolution then refines itself. Now in terms of the speeding up of the evolution of music, before we had records, in order for you to learn how to play a lick, you'd have to see a guy play it 100 times. And you had to travel. If you were a guy in New York City, if you heard a guy in Heck, how did you hear him? You had to go there. It took flamenco guitar about 400 years just to travel through Spain. At the level of nesting evolutions, we've really sped up in the last two generations because the records have linked up the world. You can pick up the needle and play some song that you want to learn — play it 100 times — any time that you want to. You want to learn how to play like this guy? Put the needle on it, pick it up, do it again, pick it up, do it again. The rate of propagation increased logarith-mically. In 60 years time, by the time you got to Miles Davis, by the time you got to John Coltrane doing *Om and Ascension*, atonal arhythmic jazz whose harmonic structures were equally as complex as modern European composers like Schoenberg, you're done. You're done!!! You've got all the colors in your paint set. We've done that part of it. Rock jazz fusion funk punk country swing blues — the names are in. Now it's technique. Now you concatenate. •

CAMPER VAN

by Marc Laidlaw

C amper Van Beethoven — let's make this personal — is my favorite band. I speak not only of a cerebral appreciation of various effects, ingeniously contrived yet as spontaneous-seeming as a music-camp jam, nor of undersea tone-currents to which my body sways as helplessly as a piece of kelp; for there is something deeper even than these things… something I love. It's not that all the words and music arrow straight to the heart, either, for some of the songs are goofier than a surfer's left foot, while others are moody and morbid as the darkest night of a Saturnian poet's soul. The fact is, Camper Van Beethoven's sound is so well-rounded, so full of surprises, that — the first time I heard it — the music already seemed like an old and favored friend — unpredictable, ever-changing, but good and deep and true.

This many-faceted persona is currently the work of five musicians, though it remains the evolved product of many individuals who have played in the group and left their stylistic marks on it over the years. Sadly — although perhaps luckily for my primitive interviewing skills — I was able to corner only one of the 'five at San Francisco's Warfield Theater on December 15, 1989, the last night of their Key Lime Pie Tour.

David Lowery, spokesman and chief lyricist for CVB, is a lanky blond with features that Rudy Rucker says remind him of someone who has been buffeted by countless cosmic storms and spent hard nights in the outer gulfs of existence or

BEETHOVEN'S

WEIRD Angles

perhaps East
Texas: a face honed
down to rugged essentials by
the elemental action of visionary
weather. I don't know about all that, but Lowery
definitely has developed a unique approach to life
and those things in it worth singling out as
significant. Like all the best artists, he shows us
the strangeness in familiar things, and vice versa.
In fact, the word "strange" recurs frequently in
conversation with him: strangeness as a signifier, a
key to those weird doors that open so rarely and
memorably in the claustrophobic corridors of our
lives.

The music of Camper Van Beethoven, spiced
and heightened by Lowery's surreal yet pointed
imagery, is itself a most effective door to these
other realms. Drop the needle on any CVB album,
enter an auditorium where they are playing, and
you are instantly immersed in a new environment
— one infinitely varied, ultimately strange, From
track to track, these sounds and songs are similar
in their strangeness — otherwise they are whole
new and wholly different worlds. The thread of
Lowery's lyrical sensibility seems to offer some
continuity as we venture through these liquid
dimensions — but it's fleeting and multiform, as
textured with strangeness as the music itself.

The music...

I shy away from describing the music because
while words can approach other words (I can, for
instance, quote Lowery's lyrics) the sinuous
sounds of the instruments are elusive,
indescribable. The electric guitar solos are almost
literal in their authority. The fiddling gets into my
marrow and chills, electrifies it; sometimes a
soulful mourning, sometimes a cold jolt of reality
adding to the ecstatic tension of the evocative
sound-pictures Camper Van Beethoven paints so
deftly that I often look up expecting to see planets

detached
from their orbital
dreams and softly plunging
down like cooling hot-air balloons to
bounce from the surface of my skull. There is a
constant atmosphere of surprise: you realize,
listening, that the musicians are getting away with
things you never dreamed possible — and doing it
with incredible, easy grace.

But words really are no good here. The lyrics
are only part of it, more than a fifth but far less
than the whole. And this word-bound interview is
served up mainly to point you to the transcendent
five-fifths-plus of the full sound; to the fused
talents of these artists dreaming new, irresistible
words for our pleasure, turning keys in doors of
ivory and smoke. Buy an album — or better yet, a
ticket. Open your ears as the needle drops, the first
drumbeat kicks in, and pass on through...

Mark Laidlaw

DAVID LOWERY: A friend of mine, who
spent his life making dinosaurs, got a job
designing sets for these guys who do bizarre
independent television shows; I don't know if
they're successful but they've come up with
some great, crazy pilot ideas. So he called me
up one day and said, "Hey, I'm designing this
set, do you want to come down to LA for the
shooting and hang out?" So I went down there
and it turned out these guys were doing a
pilot for a Robert Anton Wilson talk show that
would have aired at 12:30 AM. I watched the

whole thing and it was great; and I talked to Wilson afterwards. Having read all his books, I wanted to ask him some stuff. Well, I recognized the producer of the show from this place where I always eat breakfast, and he said "Hey, you're familiar." So I said, "You probably know me from Camper van Beethoven." But it turned out he didn't recognize the name or anything. It was good to be humbled a little bit. So I kept seeing him at this breakfast place, and one day he said, "I heard some of your music and I was wondering if you would do the theme song for the Robert Anton Wilson show, submit some music". I said, "Sure, I'd be into that." So I wrote the opening theme, which is "Opening Theme" on our latest record, *Key Lime Pie*. I guess nothing ever happened with that pilot.

MONGREL GOULASH
MONDO 2000: Do promoters have trouble presenting you, because of your diversity?
DL: They did in the beginning, but now we're known for it. In fact, our new record has been criticized because too much of it sounds the same. It sounds like we've got a style now. But that's not really true. Those are just the songs we chose for the record. We made a very deliberate decision to give this album a particular mood. Although compared to anybody else's records, it's still pretty diverse.
M2: Does that reflect the band's eclectic interests?
DL: Yeah. Originally, the great rock bands realized that pop was this mongrel, a meshing goulash of cultural influences. It wasn't a pure musical form. But now every band has one subgenre that they choose as their style. In everyday life I think most people listen to a lot of different kinds of music. We listen to different styles of music, so there's no reason not to play various styles as long as we either

play them well, or we try to make it something different, new — and accept it for what it is. That's the whole history of rock 'n' roll, which is something that people have forgotten. If you look back at the bands that people consider the classic great rock bands, they all did that. The Beatles had this weird English pub music and brass band influence, with a little bit of country, and they were trying to do American rock. To me, all the great bands were really eclectic.

To play in a rock band is to participate in this live, vital musical form. That's why I don't play classical music. I don't think it's alive. I don't think it's vital. We don't have folk music in this country anymore, so that's what rock music is. There's got to be a vital interchange and interaction between the culture and the band. So we do things like, "Well, we don't know what fucking Russian music sounds like so let's make it up and turn it into something new and we'll let that change our sound. We'll make a Russian sound that we like."

PARANOID FOR THE FUN OF IT
M2: What are some of your non-musical influences?
DL: Science fiction, because it experiments with ideas about *all* human culture, not just *our* culture. I read a lot of Philip K. Dick when I was younger, and naturally, I've read William Gibson, who's sort of an extension of what Dick was trying to do — science fiction about culture. I really love Thomas Pynchon. He has something in common with a lot of the new science fiction writers. He was really writing about culture in a more overt way, treating it as an object rather than a milieu… like the best SF. I've read a lot of Robert Anton Wilson. I *loved* the *Illuminatus* trilogy.
M2: Are there any clues to those things in your songs?
DL: About six months after our first record came out, we went on a big tour of the U. S. and I started rereading the *Illuminatus* trilogy, because it seemed like a good thing to read in the van, where you sort of read for five minutes and then put it down. And we started getting really paranoid. We had this whole string of events happen to us that seemed vaguely related to Illuminati conspiracy theory. It all culminated one night when we were eating at this place called the Blind Pig in Ann Arbor, Michigan. It's a restaurant with a club in back where we were playing. Jonathan remembered that there was a relation between the Blind Pig and the Illuminati in Wilson's trilogy, but I wasn't really thinking about it. I just noticed that we were in this booth with a big eye-in-the-pyramid above it, and there was a picture of Dutch Schultz on the wall. The restaurant had a gangster theme. At that time we'd all stay in one hotel room, and we kept getting room #23. So we named our second record *II & III*, and that was our reference to that. Then there was the "Take the Skinheads Bowling" single, which contained all these symbols from Thomas Pynchon's *The Crying of Lot 49*. The references are all sort of vague, though.

THE WEIRD AND THE MUNDANE
DL: My primary lyrical influences are two writers: Gabriel Garcia Marquez, for the way he talks about reality, and this strange poet I grew up with in Santa Cruz and Southern California named Eric Curkendall. I was in a band with him. He was the singer and he heavily influenced me in the way he would blend all kinds of pop culture imagery into his lyrics. He was basically into images of death and eating. But it wasn't the cliche, stupid 80's-alternative-band grotesque horror images of death. He was really tuned into it. He was

influenced by folk stories. So all his stuff was about food and death and the fecundity of life. In a way, Marquez is about that too. He has that dreamlike way of talking about... well, *stuff*. That — for lack of a better word — dreamlike way of talking has been a big influence on me. I remember when I was a teenager and I realized how weird it is that people divide the world into good things and bad things that happen to them — or happy times and bad times. I decided that a much better idea is to divide experience up into the mundane everyday things that happen to you and the weird things that happen to you. If you only look at things as good and bad, or happy and sad, you miss all the shit that's really great! To me, a lot of what we've been doing in Camper van Beethoven is showing a world made of all the strange things that happen, all the bizarre stuff...

KEY LIME PIE ALA MODE

M2: Could you tell us a little about how some of the songs on *Key Lime Pie* came to be written?

DL: To start with "Jack Ruby," I'd been fascinated over the last year with the American folk ballad form — the ballads about bad guys and bank robbers and how they're amoral — told in a way that engages the listener to interpret them. Think about all those bank robber ballads — and there're all kinds of 'em in American folk music — where they're not quite heroes, but there's something interesting about their freedom and the way they get away with what they're doing. Or maybe they get punished but their lives are poetic. Also, I like the way they go on for twenty verses and there's no chorus, there's just these stories. So I came up with this folky chord progression, and I thought it should have twenty verses about some kid who goes around robbing 7-11s. At first I came up with all this vague, cliché, folk ballad imagery. Then I was sitting in my studio in Santa Cruz, and I had this little photo on my desk of Jack Ruby before he shoots Lee Harvey Oswald. I thought, "this is something to sing about!" So I tried to do it in that folk-ballad form, portraying him the way you might one of those old anti-heroes.

In "When I Win the Lottery," it was very obvious that I had created a character, so I treated it the way you would if you wrote a short story. You get into the characters and let them say what they want to say. I wrote shitloads of things this character would say, and then edited it down to verses. My character was actually more racist, but I decided I had a little bit of responsibility. I knew people wouldn't understand that I'm playing a character because that's not the way people listen to music. So I left out all the racist stuff, even though, in some ways, I was editing part of my artistic integrity. That's kind of a fucked character, but he also has some scary sort of insight into the world.

"All Her Favorite Fruit" came from a line, "and does he ever whisper in her ear all her favorite fruit?" that just popped into my head. So I said, "OK, what is this about?" That's pretty much how I write all the songs. There's not too much premeditation.

WHERE THE HELL BILL IS

M2: Are you interested in the Surrealists, or does your imagery stem from another source?

DL: My ex-girlfriend studied modern french history and was into the Surrealists and the Dadaists, so I was exposed to a lot of it. But the elements of the absurd in our music come more from being a teenager playing in punk bands. I don't think you come any closer to the truth about life by being heavy and serious. By being funny, absurd, and insane, we're also approaching the truth — maybe even

> **"AND DOES HE EVER WHISPER IN HER EAR ALL HER FAVORITE FRUIT?"**

in a better way.

M2: Your topical songs tend to be humorous, while the songs that you treat seriously are usually more abstract.

DL: We don't do many topical songs any more. How long do you want to listen to me commenting on a very specific, narrow band of white-boy pop culture? It gets tiring. There are so many other aspects of our music that it was really easy to leave that behind. The problem with topical stuff is that it's very superficial. Political cartooning is great, but you wouldn't want to run the world by the wisdom taken from political cartoons. My interests just naturally lie more in the weird, as opposed to the mundane, in terms of my dichotomy of the world again. That's what interests me, and that's what comes out. For example, we've played "Skinheads Bowling" almost nonstop for five years now, while "Where the Hell is Bill," which is really topical, wore out fast. And while "Take the Skinheads Bowling" was slightly topical, it was really fucking absurd. That was my anti-pop song. Nobody could read any

fucking thing into it. Whatever I thought of saying, I just said. For a while there it didn't have set lyrics, but I came up with my favorites and kept those. That one lasts because of its absurdity.

VIDEOS OF MATCHSTICK MEN

M2: You've got your first commercial hit with "Pictures of Matchstick Men," which plays frequently on MTV and has attracted the attention of the teenage crowd. How does this success compare with the praise of so-called sophisticates like Greil Marcus?

DL: The urban, intellectual, semi-educated culture is often more closed-minded than your average teenager who doesn't know fucking shit. When there's a big teenage faction in our audience, we can be way more experimental than with the average twentysomething crowd who lives in the big city and knows all the cool bands like Sonic Youth, the Pixies, and Camper van Beethoven. We can get away with so much more because there are no preconceptions. Some of them just don't get it, of course, but when teenagers do get something, they understand it more deeply than the critics who are writing about it. The critics have to look to the teenagers. Teenagers are the validation of rock 'n' roll. *Rolling Stone* may have declared us one of the best bands of the 80's, but if nobody who plays the vital, living rock of 1990 — the 17-year-olds of today — is ever influenced by us, then it didn't mean anything. It sounds whorish to some people that you have to appeal to teenagers in order to be a valid rock band. But rock isn't dead like classical music or highbrow fiction. It's a live, vital part of our culture. And if you're going to play it, you should participate in it. •

And as we were going to press, word had it that Camper Van Beethoven had broken up. David Lowery, however, has not — as far as we know — broken up and we're sure we'll be hearing more from him soon.

Turn on, Toon in, WATCH OUT!

POSTMODERNISM REIFIES HALLUCINOGENESIS

I n *The Varieties of Religious Experience*, William James wrote that drug-induced states of consciousness are "definite types of mentality which probably somewhere have their field of application and adaptation." The practical applications of most such states, however, remain occult, perhaps the most notable exception being the caffeine-induced dither that propels the typical office worker. But the mental states produced by the hallucinogenic drugs in particular seem to seethe with potential new sensibilities that languish without practical applications, notwithstanding traditional shamanic applications and despite several decades of scientific research into the drugs.

Nevertheless, as Western culture moves out of the modern era and into postmodernity, practical applications are being foisted upon hallucinogenic drugs, as hallucinogenesis increasingly informs the cultural milieu. Cartoons and schizophrenia are two phenomena that mark the intersection of hallucinogenesis and postmodernism, the juncture being lit with an ambiguous emotional intensity. Not everyone at home in the postmodern world necessarily has been acclimated to it by hallucinogenic drugs. But the drug experience provides a simulation of postmodernity, and therein lie its applications.

CARTOONS

Although the clinical literature doesn't acknowledge the cartoons of psychedelia, popular culture does. William Gibson asks in "The Gernsbach Continuum" (in *Burning Chrome*), "How many people survived the Sixties in California without having the odd

Ken Jopp

hallucination? All those nights when you discovered that whole armies of Disney technicians had been employed to weave animated holograms of Egyptian hieroglyphs into the fabric of your jeans..." William Burroughs recalls psychedelic cartoonery in *The Soft Machine*: "He took out some dried mushrooms and herbs and began cooking them in a clay pot... I drank the bitter medicine and almost immediately the pictures I had seen of Mayan artifacts and codices began moving in my brian like animated cartoons." In *Storming Heaven* , Jay Stevens recounts a ketamine tripper's observations: "I'm moving through some kind of train tunnel. There are all sorts of... little people and stuff running around the walls of the tube, like little cartoon nebbishes."

Since the 1960s, cartoons have become ubiquitous in mass media. They fill every graphical niche from Hollywood to Madison Avenue that can't be filled with a physical object. The resurrection of Walt Disney's *Fantasia* was a breaking point in the ascendancy of cartoonery, one that coincides with the baby boom's psychedelic years. In *Mickey Is Sixty*, a commemorative publication from Time, Inc., film critic Leonard Maltin writes that, upon its release in 1940, *Fantasia* "met with almost total indifference, except in critical circles, where, for the most part, it was greeted with outrage. *Fantasia* finally came into its own in the 1970s, too late for Walt [Disney] to see his dream movie accepted by the public." Apparently the audiences who "accepted" the movie thirty years after its release saw in it something that the previous generation did not. Perhaps Disney's animation tour de force became a hit in the 1970s because it looked so *familiar* to audiences then, because so many moviegoers already had watched drug-induced neurocartoons of similar complexity unfold and dance behind their eyelids. Since *Fantasia* enlisted the allegiance of heads during the 1970s, cartoonishness has found its way ever deeper into contemporary culture. The movie *Who Framed Roger Rabbit?* echoes the ambitions of *Fantasia*, but takes things a step further and intentionally blurs the distinction between cartoonery and reality.

Today, painters Kenny Scharf, Keith Haring, and Mark Kostabi continue to mine the cartoon motif and serve its contents to the Art market. And the postmodern design world has been just as taken by cartoonishness. The Italian group Memphis in particular championed the cartoon aesthetic during the early 1980s. The playful, quirky, and incongruous shapes and intensely colored, laminated, and enamelled plastic surfaces of Memphis furnishings are unmistakably cartoonish. "The superb workmanship," of Memphis designer Matteo Thun's porcelain vases "Titaca" and "Onega," "contrasts amusingly with their outrageous, flat, cartoonish shapes and lines," writes Richard Horn in *Memphis: Objects, Furniture, and Patterns* (Running Press, Philadelphia, 1985.) Horn also warns against rooms designed exclusively in Memphis patterns: "Though they make their point, these rooms recall the graphics of bad (or very intense) acid trips." Nonetheless, a writer for *Advertising Age* (6/2/86) opined, "Memphis now is heralded as the watershed of postmodernist design."
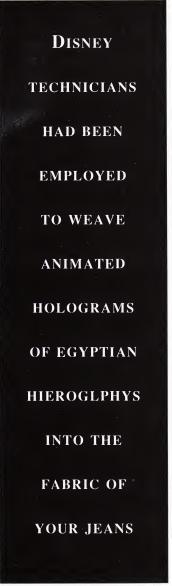
On the small screen, *Pee Wee's Playhouse* extracts and concentrates postmodern design's cartooniest leanings. Along with assembling rancid patterns of colors and shapes, host Pee Wee Herman skillfully hybridizes physical objects, cartoons, claymation, and computer graphics into a trippy video extravaganza. The *Playhouse* openly celebrates the emergence of a psychedelic cartoon asthetic. And with computer graphics generally automating the production of fluid, animate, weightless imagery throughout mass media, the continued cartoonification of postmodern culture seems assured.

SCHIZOPHRENIA

Schizophrenia marks another juncture of hallucinogensis and postmodernism. An early research school thought hallucinogenic

drugs modeled schizophrenia, and so deemed the drugs "psycho-tomimetic," and postmodern theorists are resurrecting the psychotomimetic model to account for postmodern experience. In his essay "Postmodernism, or the Cultural Logic of Late Capitalism" (*New Left Review* #146, July-August 1984), Fredric Jameson writes that he finds Jacques Lacan's account of schizophrenia useful in describing postmodernism "not because I have any way of knowing whether it has clinical accuracy, but chiefly because — as description rather than diagnosis — it seems to me to offer a suggestive aesthetic model."

Jameson argues that the aesthetics of postmodernism, within which "even the automobile wrecks gleam with some new hallucinatory splendour," can induce schizoid responses. Duane Hanson's sculptures, lifelike and life-size three-dimensional snapshots of drearily ordinary people, provide an example. Jameson writes, "Your moment of doubt and hesitation as to the breadth and warmth of these polyester figures... tends to return upon the real human beings moving about you in the museum, and to transform them also for the briefest instant into so many dead and flesh-coloured simulacra in their own right. The world thereby momentarily loses its depth and threatens to become a glossy skin, a stereoscopic illusion, a rush of filmic images without density." The similarity of this description to psychedelic experience is evident, but just as suggestive is Jameson's ambivalence toward the exerience. He asks, "But is this now a terrifying or an exhiliarating experience?" The emotional ambiguity that he suggests is another point of hallucinogenic and postmodern convergence. Jameson is asking whether a "stereoscopic illusion" of a "rush of filmic images without density" constitutes a good or a bad trip.

Elsewhere (*Social Text* #17, Fall

DISNEY TECHNICIANS HAD BEEN EMPLOYED TO WEAVE ANIMATED HOLOGRAMS OF EGYPTIAN HIEROGLPHYS INTO THE FABRIC OF YOUR JEANS

1987), Jameson elaborates on the postmodern experience in terms that might as easily have been lifted from a schizophrenic or a psychedelic account. Within the postmodern milieu, he says, "it is the body that is touching its limits, 'volatilized' in this experience of images to the point of being outside of itself, losing itself. It is a reduction of time to an instant in a most intense final punctual experience of all these things, but it is no longer subjective in the older sense that a personality is standing in front of the Alps and knowing the limits of the individual subject and the human ego. On the contrary, it is a kind of non-humanist experience of limits beyond which you get dissolved." If this description portends generic postmodern experience, then people already acclimated to psychedelic effects, via drugs or other means, should enjoy an adaptive advantage in the postmodern milieu.

SYNTHESIS

"Schizophrenia" is a convenient label for all kinds of strange orientations to reality. If I can attempt an informal exegesis, let me suggest that people diagnosed "schizophrenic" might seem to reject the empirical world, but they don't do so in the same way as do people diagnosed "autistic." Schizophrenics can engage this world viscerally. What they reject is the obvious-seeming distinction between the empirical world and the imagination. Schizophrenics take the empirical world as an element of reality and the world of the imagination as an equal element and integrate the two into a hybrid reality, a synthesis that recalls *Roger Rabbit*. The movie *Who Framed Roger Rabbit?* stands as a milestone on the road to a psychedelic schizoid cartoonized future. By synthesizing cartoons and live action into a seamless Gestalt, *Roger Rabbit* foreshadows a phenomenological closure, a synthesis of hallucinogenesis and empiricism. Postmodern theorist Jean Baudrillard notes the emergence of such a condition, calling it "hyperreal." In *Symbolic Exchange and Death*, he writes, "Surrealism remained within the purview of the realism it contested — but also redoubled — through its rupture with the Imaginary. The hyperreal represents a much more advanced stage insofar as it manages to efface even this contradiction between the real and the imaginary. Unreality no longer resides in the dream or fantasy, or in the beyond, but in the *real's hallucinatory resemblance to itself.*"

Roger Rabbit, Pee Wee Herman, Max Headroom, and other cartoony pop phenomena expose a cultural embrace of the schizoid and the arrival of a sensibility that builds on eroded distinctions between the contrived and the natural, the imaginary and the empirical, the cartoonish and the realistic. The psychedelic experience provides a referent for cognizing the breakdown of these categories. It reveals for examination the postbreakdown state.
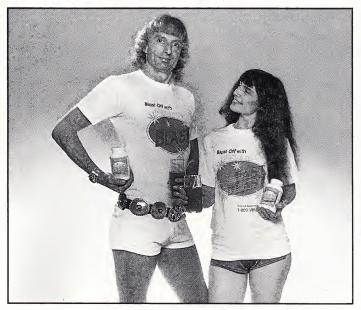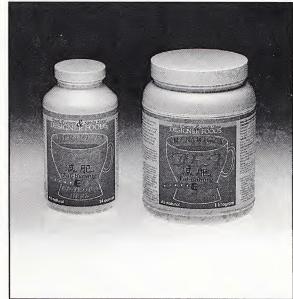
APPLICATIONS

The implications of all this for the application of hallucinogenic drugs seems relatively straightforward. Initiates familiar with hallucino-genesis will best be prepared to maintain level heads, resist the lure of cultural novelties, and recline and enjoy the scenery as postmodernity imposes the hallucinogenic milieu from without. Therefore, the drugs can be regarded as cultural training equipment, functioning as flight-simulators do for pilots. They may become applicable as evolutionary lubricants, easing the transition to postmodernity. Indeed, as the pace of technological advance flies off the charts, the coming decades could get so disorientingly bizarre so fast that psychedelics might become essential innoculations against Future Shock.

In the introduction to his book *The Poetry of Surrealism*, Michael Benedikt recalls that the Surrealists took Freud's interest in the unconscious a step further than did Freud himself. The Surrealists were not content to explore the unconscious; they set out to colonize it. We postmodernists are reviving that aspect of Surrealism. In the 1960s and 70s, hippies explored the neurocartoons of drug-induced "psychotomimesis." From now into the next century, postmodernists will reify and inhabit those cartoons. And the fields of hallucinogenic application and adaptation will yield a fruitful bounty. •

HOW I CREATED A MEDIA VIRUS

Wes Thomas

On July 20, 1989, I unleashed the world's first media virus. Over the next three months, I watched in amusement and later horror as the "Friday the 13th" virus story became distorted totally out of recognition, sending millions of computer users into panic.

More misinformation and hype was carried in the media about this story than the Comet Kohoutek and the War of The Worlds radio show combined.

Now here's the real story.

On July 13, John Draper, aka Captain Crunch, forwarded me a fax from Rop Gonggrijp, editor of a hacker's magazine in Amsterdam, on the Galactic Hacker Party. *During the summer of 1989, the world as we know it will go into overload*, the cryptic message began. *An interstellar particle stream of hackers, phone phreaks, radioactivists and assorted technological subversives will be fusing their energies into a media meltdown as the global village plugs into Amsterdam for three electrifying days of information exchange and electronic capers...*

Draper was scheduled to keynote this first global hackers gathering. He asked me (actually, the Captain doesn't ask, he commands) to publicize it. I called Rop for hot buttons. Something called the "October 12" (aka "Datacrime" aka "Columbus Day") time-bomb virus would be big, he hinted.

HACKER THOUGHT PATROL SPRINGS INTO ACTION

On July 20, I sent an MCI Mail electronic mail message to *New York Times* reporter John Markoff and John C. Dvorak, the computer industry's top gossip columnist, alerting them to the event and to the virus. I also sent a private draft press release for comments to a few people. It included the speculation by some that the virus was timed for the Hackers 5.0 event on Oct. 14.

A copy of the draft somehow fell into the hands of the Hackers 5.0 conference organizers. One of them theatened to report me to the FBI unless I revealed my sources and reviled me for not reporting all this to the "authorities" (whoever they may be). Since all this was public information, I told him to call Amsterdam and interrogate someone over there. Were hackers getting conservative and image-conscious? Was sensationalistic media coverage about hackers creating a sort of cyber-McCarthyism?

Dvorak pressed for details. After many calls, I found just two people who knew about it: Joe Hirst, Technical Editor of the *Virus Bulletin* (England) and John McAfee of the Computer Virus Industry Association. Based on their inputs, I wrote a description of the virus and e-mailed it to Dvorak.

According to my sources, the Datacrime virus would activate on Oct. 12 of any year. The next day, Oct. 13 (Friday the 13th, a favorite virus-activation time), the virus would search through the hard disk and floppy drives of a PC and infect the first uninfected program (.COM or in some versions, .EXE file).

It would then display the message: "Datacrime virus released 1 March 1989" and wipe out the FAT (file allocation table) and the root directory. This would make the disk unreadable, except by experts using special programs.

MEDIA MELTDOWN BEGINS

The following Sunday, August 6, Dvorak ran my description verbatim in his *San Francisco Examiner* column. The next day, the Associated Press picked up the story. The genie was out of the bottle.

TV networks and newspapers began carrying horror stories. Hawking their own anti-viral cures, self-appointed experts "explained" that thousands of computers were already infected. One company ran a full-page ad for their software in the *Wall Street Journal* to cash in on the hysteria. Somewhere along the line, the Oct. 12 virus became the "Friday the 13th" virus, which made better copy. (The virus was designed to "wake up" on Oct. 12, but actually wipe out hard disks on October 13th.)

CNN warned viewers to avoid sending data over computer networks — an absurd piece of advice, since the virus is not carried by data files. It also warned that "all PC computers would be wiped out at 12:01 a.m. on Oct. 13." Even if they were off? It seemed Jason was about to attack us all. Don't go out of your house. Don't turn on your computer.

VIRUS SCAM... ER, SCAN

One frequent TV guest was Winn Schwartau, President of American Computer Security Industries. Schwartau was pushing his VCHECKER software, which scanned for "Datacrime strings" (known combinations of characters in the virus "signature"). (I later found that the strings I got from the *Virus Bulletin* were wrong. So much for the experts.)

Schwartau told me there were "ten major billion-dollar corporations and some government agencies that are infected by the Datacrime virus, including their local area networks."

With little or no information to guide them, each company was on

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CNN WARNED VIEWERS THAT "ALL PC COMPUTERS WOULD BE WIPED OUT AT 12:01 A.M. ON OCT. 13"

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its own. They began massive educational campaigns for employees to back up data and use anti-viral software. "We've sold 30,000 copies of VCHECKER in the last three weeks to deal with this problem," Schwartau told me.

The Reston, Virginia-based Centel Federal Systems (owned by independent telephone company Centel Corp. of Chicago) that markets VCHECKER told me they had been receiving thousands of calls about the virus, with six people working the phones full time, mostly from government organizations.

Curiously, to my knowledge, no one has ever come forward and said they actually had this virus. What's wrong with this picture?

GOVERNMENT VIRUS PARANOIA

Computer users in the US government are indeed obsessed with viruses. And with good cause. A leading computer security expert explained to me that government users get a lot of their software, believe it or not, from computer bulletin boards,

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because they can't afford to buy it. Then they pass it around the office. This is a perfect breeding ground for viruses, especially when combined with other sources of infection, such as software demo and diagnostic disks that travel between computers, acting as potential disease carriers.

Indeed, a knowledgeable security consultant told me that two U.S. government agencies had been infected, along with the Canadian government and the Dutch Ministerie Van Defensie (equivalent of our DoD).

According to virus expert Dr. Jon David, another major source of viruses is "people with contacts with universities, such as new hires, employees taking advanced courses, and consultants affiliated with universities," he said, advising companies to "exercise particular care in examining software brought in by such people."

Another frequent media guest was McAfee, who was selling his own software solution, ViruScan, which was also available free on his bulletin board. McAfee was skeptical about the Datacrime, dubbing it the first "media virus." He told me he would "eat this hat" if there were more than 12 cases reported in the U.S.

Meanwhile, doctored copies of ViruScan circulating on bulletin boards were actually wiping out disks and proving that the cure is sometimes worse than the disease

Increasingly paranoid, the corporate big boys turned to IBM. In desperation, IBM created an instant anti-viral program and began to sell it for $35. "We don't take it seriously, but we're making it available because our customers demanded it," an IBM security official confided to me.

The placebo effect was also setting in. Any disk crash, software bug, operator screwup... whatever, became a symptom of the dreaded "virus."

Some companies began setting their computer's clocks ahead (after backing up their data) to see if they could trigger the virus on Oct. 13. According to Schwartau, six computers were wiped out that way. The *Wall Street Journal* reported that Tandem Computers Inc. advised employees to "set computer clocks ahead to Oct. 15 to skip the trigger date." The journal failed to mention that the Datacrime virus was supposed to be programmed to go off on Oct. 12 or *any* date afterwards until Dec. 31 (including future years).

ATLANTIS REVISITED

At NASA Goddard, Ron Shoupe, Group Leader of the Microcomputer Group noticed that some of his COM (program) files were larger than normal on one computer. He immediately tested for viruses by stepping the computer's real time clock forward a day at a time.

When he reached Oct. 12, the disk drive light came on by itself and his hard-disk FAT (file allocation table) self-destructed. Panicking, Shoupe immediately reformatted (erased) the entire hard disk without making copies of the infected files. He was therefore unable to identify the virus.

On his own, Shoupe began to make virus scanning software available to users... when they asked for it. Is anyone in charge here? What about NASA's 3000 to 5000 computers at Goddard alone that could be infected? "NASA's security managers don't take PCs seriously — they're only interested in mainframe security," a leading security expert explained to me.

With activists protesting the launch of NASA's nuclear-reactor-

bearing Oct. 12 Atlantis Space Shuttle, some observers were becoming increasingly paranoid about the possibilities of sabotage (virus + Chernobyl = Challenger). Shoupe assured me that NASA's sensitive computers were isolated. On Oct. 5, NASA announced that it was postponing the Atlantis launch. Reason given: "weather."

Curiously, on Oct. 16, NASA detected a worm that had infected at least 75 VAX computers on NASA's SPAN network, which controls Shuttle launches. The worm's creators called themselves Worms Against Nuclear Killers (WANK). WANK also infiltrated the HEPNet (High-Energy Physics Network) for astrophysics and nuclear data. It displayed the message: "Your system has been WANKed! — Worms Against Nuclear Killers."

WILL THE REAL VIRUS PLEASE STAND UP?

Most confusing was the apparent presence of not one — but several — viruses, all now tagged "Friday the 13th."

Experts told me that the original Datacrime actually involved three different viral strains. A few experts were saying four or five. And the publicity may have stimulated other strains that may show up in unexpected places sometime in the future. (Scan software that's programmed for existing strings won't find these, something the software vendors don't like to talk about.)

According to McAfee, what was probably causing many of the problems was actually the Jerusalem Virus (alias "Israeli," "PLO," and "Friday the 13th"), discovered at Hebrew University in December 1987.

The Jerusalem virus also goes off any Friday the 13th, causing file sizes to grow uncontrollably. It often creates a black box on the CRT. After infecting a system, one version slows down the machine's processing perceptibly.

Then there was the Disk Killer virus. Said to appear on random dates, Disk Killer is even more virulent, wiping out all data and programs. McAfee said he had three or four dozen reports of this virus during this time. He had a problem in capturing it, however, because it destroys itself while wiping out the user's disk.

Bulletin boards have also carried unconfirmed reports of several other possible viruses that could go off on Friday the 13th. Since most journalists thought it was all one virus, it was virtually impossible to make sense out of press reports.

CALL THE VIRUS POLICE!

In Europe, things were even more confused. Dutch computer magazine publisher Luc Sala told me that the virus was garnering sensationalistic headlines and TV coverage in Holland, fueled by the Galactic Hacker Party event. The Dutch Police Central Investigative Service (CRI), he said, appeared on a national TV show normally dedicated to tales of rape and murder, offering virus detective (signature-scanning) disks for $2.50.

Panicking still further, these "Virus Police" created 100,000 diskettes with the program for public use. An Oct. 3 Reuters wire story converted this figure into "100,000 infected personal computers." The story was uncritically and widely carried in the U.S. media.

Continuing the Keystone Kops movie, three local Dutch police departments (including The Hague) distributed diskettes containing yet another anti-virus program. This program triggered false alarms when it saw the Datacrime "signature string" (a

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TO MY KNOWLEDGE, NO ONE HAS EVER COME FORWARD AND SAID THEY ACTUALLY HAD THIS VIRUS

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combination of letters that appear in the virus) in the CRI's program!

NORWEGIAN VIRAL TERRORISTS?

Theories about the origins of Datacrime were as varied as myths about the creation of the world. One reliable source attributed it to a young hacker in Austria whom he interviewed at the Galactic Hacker Party. The Dutch police attribute it to Dutch revolutionaries. Data nihilists believe it never existed.

The U.S. Government was more imaginative. According to the VIRUS-L bulletin board (a major virus information exchange), on September 24 the U.S. Air Force Office of Special Investigation published a warning on MILNET/DDN, the D.O.D. e-mail system.

The Air Force memo listed two suspected sources: a European extremist group inspired by the Baader-Meinhoff Gang and a Norwegian group displeased with celebrations honoring Columbus (Oct. 12 is Columbus Day), while ignoring Norse

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discoveries preceding those of European explorers. The Air Force also sent out a directive to "cease using all software downloaded from pri-vate bulletin boards."

VIRUS ALERT!

Things were clearly getting out of hand. No one, not the government, not the experts, understood what was going on. I decided to do something: publish a news-letter, *Virus Alert*, with help from Sala and *Virus!* book author Allan Lundell, it would attempt to set the facts (if any) straight.

On Oct. 12, after weeks of researching and filtering out hype and contradictory information, we distributed the first issue to the media and various and sun-dry experts and interested parties.

Lundell and I decided to track virus reports and filter out the nonsense. As instant experts (not very difficult, given the abysmal level of ignorance in the industry), we had the bizarre idea of setting up a clearinghouse for Datacrime virus reports — the computer equivalent of the Centers for Disease Control.

The Associated Press and Reuters began calling me hourly for reports. But there was nothing to report. The virus never appeared. At least, I saw no reports that were validated, except for one possible case from the Royal National Institute for the Blind where, the report I saw said, programs were "vanishing in front of their eyes." Sort of the blind misleading the blind?

Media naivete lingered after the event. On Oct. 14, citing sources at AT&T and other organizations, the *Newark Star Ledger* reported that "preventive action taken largely by corporate America had thwarted a massive infestation of the virus throughout the nation's data systems."

The virus was dead. For now. •

DIGITS RUN RIOT!

SYNAESTHETIC ELECTRONIC TECHNOLOGIES

JAS. MORGAN

THEN IT SPINS OUT OF CONTROL

• IT STARTS WITH MCLUHAN —

As we accelerate [accelerate][1] increasingly towards lightspeed and into hyperreality it's only natural that we as a culture reinvestigate and reinvigorate the ideas of Marshall McLuhan. The last two years have seen the release or re-release of seven books by or about McLuhan, including Laws of Media, completed posthumously by his son Eric, and handsome reprints of his "picture book" collaborations with graphic artist Quentin Fiore, The Medium is the Massage [1967] and War and Peace in the Global Village [1968]. McLuhan is also a major source and influence for Avital Ronell's fabulous The Telephone Book: Technology, Schizophrenia, Electric Speech, Richard Saul Wurman's bestselling Information Anxiety, and the works of the trendy French post-modern philosophers Jean Baudrillard and Roland Barthes [Marx meets McLuhan in virtual Hell].

My recent rediscovery [reun-covery][2] of MM has been in the context of linguistics, music-ology, and cognitive science [particularly in terms of synaesthesia], all largely as applied to the potentials of virtual reality. It is extraordi-nary to witness the clarity of McLuhan's vision as it emerges in contemporary culture. Randy Walser, the chief hacker at Autodesk Inc.'s Cyberspace Initiative, recently told me that McLuhan had articulated his job description some 25 years ago. It is my hope that "McLuhanism" can be forged into a kind of science through which the effects that new media have on perception will be understood. The fragments that follow are part of a larger work-in-process that I hope will contribute toward that end.

SYNAESTHESIA AS HEALTHY SENSORIUM

He placed them on a table and divided them into two categories: first, the simple perfumes, in other words the pure spirits and extracts; and secondly, the compound scents known by the generic name of bouquets.

Sinking into an armchair, he gave himself up to his thoughts.

Little by little the arcana of this art [perfumery], the most neglected of them all, had been revealed to Des Esseintes, who could now decipher its complex language that was as subtle as any human tongue, yet wonderfully concise under its apparent vagueness and ambiguity.

To do this he had first had to master the grammar, to understand the syntax of smells, to get a firm grasp on the rules that govern them, and, once he was familiar with this dialect, to compare the works of the great masters, the Atkinsons and Lubins, the Chardins and Violets, the Legrands and Piesses, to analyse the construction of their sentences, to weigh the proportion of their words, to measure the arrangement of their periods.

— J. -K. Huysmans, Against Nature [1884]

Synaesthesia comes from the Greek *syn* [union] and *aisthesis* [sensation]. This is literally a merging or parallelism of sensory input where events of information occupy the same pencils of sensory space. Sound and light might merge at the same point of data — occupy the same piece of meaning. Synaesthetic functioning permits a rapid downloading of enormous quantities of experience/data. Since too much information too fast distracts attention from productive work, synaesthetic prowess is discouraged in contemporary culture [Plightgeist[3]].

Ultimately, of course, mutations in neurological functioning resulting from new media are about as controllable as software and drugs. Our Zeitmeisters[4] apply neuro-cultural brakes to such emerging cognitive superfunction, so that political and economic "reality" can be maintained by the linear dataflow of advertising. After all, the consumer PoMo must maintain enough sensory discretion to recognize and imprint the corporate logo and pilot the automobile down to the mall. Thus we are encouraged to have implicitly psychedelic cultural forms but not explicit psychedelic experience. [All advertising Advertises Advertising — MM.]

TELEVISION: WHY DO YOU THINK THEY CALL IT PROGRAMMING?

You don't want to put the baby back in the 'fridge and then suckle the turkey.
— R. U. Sirius [1990]

Wilhelm Reich, in *The Mass Psychology of Fascism*, wrote that while political control is maintained by monitoring and controlling the channels of media, over time propaganda manifests itself on a physiological level as discrete components of personality. McLuhan observed that advertising — the catchy jingle or the smart advert —

repeated enough times will eventually instruct and modify human behavior.

Modern political and economic media controllers seek to maintain a sensorium that receives information on discrete channels of sensory input. Thus the promotion of literacy-as-education is coupled with the discouragement of psychedelics, brain machines, and — perhaps in time — virtual reality technologies. The sequencing of bits of data strung together and decoded by the listener in sequential Newtonian fashion is maintained by the conventional media; print, radio, and TV favor a visual linear syntactical approach.

The supercognition of syn-aesthetic communications makes possible a language of Gestalts, the bootstrapping of discrete sensory channels. Seeing and Hearing becomes SEE/HEAR for example. Psychedelics offer us a taste of synaesthetic possibilities that are increasingly being assimilated and integrated with our external electronic communications technologies.

In higher animals, the brain creates the illusion of stratified sensation of sensory input. We have seen that media control is not so much an issue of content as it is a process of continuously reimprinting traditional organic human perceptual prejudices. No wonder the educated white middle class liberal is terrified of the anarchic post-literate MTV generation [though never failing to pay the cable bill]. The l'il Illiterati[5] are impervious to the obvious literal forms of political/cultural thought

control. MTVisionary kids are wise in the electrocommerce-game of high energy flow and play it out in an eloquent psychosexual aesthetic.

Check out the British MTV import *Buzz*. The editing of that show — its rhythm and cadence — demonstrates a glorious sensory awareness of the cultural mutation happening in 1990 — the shifting of sensory bias from the visual [linear/old world/print journalism] consensus reality to the auditory [non-local/everywhere-ness/allatonceness] con-sensuous realities of electronic eroticism and acoustic tele-tactility. Here, in a matter of seconds — against a black backdrop, we see an image of Rambo — all alive with sweat & holding his weapon obviously poised to kill; electroseamlessly it resolves into an industrial film clip of a huge bucket of steaming-hot frankfurters spewing across the screen, splashing into a metal serving bin. Psychophysical associations abound — bullets firing as meat-n-guts, violence, recklessness, waste, bad taste... I could probably name 1,000 different associative reactions simultaneously resulting from this split-second barrage which is instantly followed by another image of similar intensity. Here I'm also saying that super-sensory awareness and electronic sophistication — in this case video editing — imply a more *specific* range of potential associations. Conditioned imprints of media pattern recognition that rested on the assumption that the brain *isn't* parallel processing at the rate of billions of bits a nanosecond are hereby blown to hell. Such fastfire blipvert TV programs have already opened us up to the synaesthetic, cognitive possibilities of a multi-tasking brain. To complete the loop, such sensory awareness as applied to new sense-saturating electronic communications devices will result in the exchange of enormous amounts of information.

MTVisionary Kids are wise in the electrocommerce game of high energy flow and play it out in an eloquent psychosexual aesthetic

McLuhan, of course, saw it coming, calling it the "electronic language of Gestalts."

SYNAESTHETIC ELECTRONIC HARDWARE

Perhaps we ought to construct computer graphics so that it will push out in a wider sphere the viewpoints of artistic materials which can surpass the various genre divisions of the separate actions of the human receptacles like seeing and listening. This is my personal dream.

— Yoichiro Kawaguchi, *Growth Morphogenesis* [1985]

Already we see the beginnings of synaesthetic hardware. In the last few years, some models of Sony stereo receivers have sported a "Surround Sound" feature that provides a seductive time-delay effect between two pairs of audio speakers, one pair positioned behind and one in front of the listener. Engaging this sensurround, one gets a reasonable hint of audio zero-gravity. Our conditioned sense of performance emanating from an imaginary stage, being transmitted by a performer/leader who's "up" in front of us — gives way to a "sonic environment" in which the listener is immersed. This effect is right brain, McLuhan's "acoustic man," Brian Eno's vertical listening ideal for Ambient musics where the listener wears the environment, R. Murray Schafer's "Soundscape."

A more interactive synaesthetic hardware is David Gibson's *Sound Sculptor* system. This allows Visual Audio Imaging for multitrack audio recording. In the studio, the artist utilizes a VPL Dataglove, CIS Graphics Geometry Ball, or another 3-D controlling device to manipulate spherical icons in a paintbox-like Macintosh virtual environment. One can "see the mix." Commands are executed using a synaesthetic combination of vision and tactility. The musician is able to reach out and grasp the spheres — each one representing a musical instrument

or acoustic event — and easily, intuitively modify recorded playback. For example, by moving a sphere from left-of-screen to right, the "guitar" pans across the stereo field to be placed in the desired position in the mix. Monitoring is accomplished in a synaesthetic medley of the auditory, tactile [sound pressures] and visual. Synaesthetic hardware.

If you crush the "guitar" sphere in your virtual grip, the little icon explodes into particles which fan out square and then quickly congeal on screen as a window listing sound & outboard effect parameters — such as equalization, distortion, reverb, digital delay. For example, if you point at "distortion," you call up another menu in which fuzztone characteristics like color, sustain, and harmonic richness can be adjusted in digital increments.

It's interesting to note the synaesthetic-engaging cognitive effects that computer graphics have on the sensorium, as new tools like Pixar's *RenderMan* make photo-realistic image synthesis far more accessible to the hacker-artist. It is equally fascinating to consider the changes in language as high-resolution synthetic imagery becomes easier to create, faster to generate, and — over the next decade — is assimilated into culture as a popular technique in everyday communications. It's with these graphics tools that we will begin to reassess our existing technology of symbolic language, and lay down the photolinguistic syntax of post-symbolic languages.

Realistic synthetic imagery is created using two distinct classes of tools: modeling and rendering. The function of modeling tools — such as *AutoCAD* from Autodesk Inc. and *Swivel 3-D* from Paracomp — is to facilitate clearer communication of ideas by allowing

the user to create computer analogs of things that don't exist or can't be seen. Rendering tools are like a palette of modeling-enhancement techniques that specify the attributes of objects and the interaction of objects with their environment.

The *RenderMan* interface was developed by Pixar to be the PostScript of 3-D graphics. In the same way that PostScript is a strategy for sending page descriptions from desktop publishing systems to a printer, *RenderMan* is a powerful set of algorithms which functions to convey scene descriptions between the domains of 3-D modeling and 3-D rendering. It's a shading language for describing the appearance of objects, scenes, lighting, atmospheric conditions and perspectives of view, all with photorealistic quality [The Genesis effect from *Star Trek II*, *The Wrath of Khan* and more recently the seawater creature in *The Abyss* were created utilizing *RenderMan*].

Fastfire blipvert TV programs have already opened us up to the synaesthetic, cognitive possibilities of a multitasking brain.

One can imagine that a musical version of computer graphics tools like *RenderMan* will function as an accurate and intuitive controller for modeling and rendering visual material in virtual environments. A rising level of musical pitch suggests spatial movement from low to high space. The addition of a MIDI-controlled reverb effect set to add an increasing value of reverb time as the pitch/glissando ascends adds a second dimension of spatial movement perceived as nearness or farness as well as below or above.

Visually, an increase in pitch might transliterate into a single line drawn some vertical distance — a function of distance of travel from lowest to highest pitch — on a screen. With the MIDI reverb effect the line would appear to recede away from the viewer.

More complex musical icons, stored and recalled by tone-generating and sampling synthesizers, could be programmed into a vast database of sonic commands for modeling and rendering of synthetic images.

A visual-psychoacoustic lexicon of tonal frequency, sonic textures, musical icons and superimposed electronic-enhancement effects invites our invention.

PIRACETAM & VISUAL AUDIO IMAGING... LOOKING FOR THE SYMMETRIES AND HOW THEY APPLY TO US ALL

In searching for new musical/acoustical experience, we are — of course — never encouraged to link the external technique of producing sounds with possible alterations in the sensorium of the listener. Nevertheless, there is an interesting and potentially quite useful sonic phenomenon that occurs with seven-gram or larger doses of the non-psychedelic cognitive enhancer Piracetam. Under Piracetam, music is perceived as a tapestry of extremely discrete auditory events. With a tight vocal harmony or "stacked" voices for example, one notices with excruciating pleasure the intervals between the voices. Perceptive possibilities involving awareness of relationship or dynamic function between musical parts are greatly enhanced and enjoyed.

Paired with a 3-dimensional virtual controller like David Gibson's *Sound Sculptor*, one can imagine a musical conversation in the

electronic language of Gestalts.

A MUSICAL PERSPECTIVE APPLIED TO THE SYNAESTHETIC SENSORIUM

John Cage first articulated the dynamic between the physics of sound and the creation of music. He outlined the five basic functions of sound as frequency, amplitude, duration, timbre [pronounced "tamber"] and envelope:

Frequency — the pitch of a sound — is a discrete level in the overall vertical sound-spectrum which is determined by the number of cycles per second [CPS] when in audible range.

Amplitude — the loudness of sound or volume —is the maximum value of a waveform from the center of its periodic cycle.

Duration — the length of time that a sound can be heard. Total duration relates to the ADSR (Attack, Delay, Sustain, Release) characteristics of a sound.

Timbre — or tone color — The quality of sound that distinguishes different musical instruments playing the same note. This is largely, though not exclusively, a complex function of harmonic richness — overtones — whose relative strength determines tone color.

EXPRESSENCE[6]: GLOSSARY: THE PORTMANTEAU AS CONDUIT FOR CLOSER TO SPEED-O-BRAIN ENERGY EXCHANGE

You see, it's like a portmanteau—there are two meanings packed up in one word... [Humpty Dumpty]

They must be very curious-looking creatures. [Alice]

To save your life, hide it in a portmanteau [Rule 14]

Charles Dodgson — savvy systems analyst, neurologian[7] and the father of quantum linguistics — applied the portmanteau as the condensing & interweaving of meanings of two or more words into one, so as to suggest something of the sense of each. Slimy + lithe = Slithy, for example.The *Surd* is the dynamic quantum particle [parti-cle] in all portmanteau constructions. It's a fusion element — an alchemical neutral synthesizer — containing mutable attributes common to the pair of opposites to allow for word-bondings. Alone, a surd is a linguistic radical whose meaning can't be exactly ascertained. This family comprises a vast

To Save Your Life, Hide it in a Portmanteau

Envelope — the four characteristics of a note or sound [ADSR] that describe its amplitude profile in time: [1] **Attack** how fast the sound arises from silence. [2] **Decay** how fast the initial attack decreases in intensity to level of... [3] **Sustain** how long the sound maintains itself until... [4] **Release** how long it takes to fall back into silence.

Since all sensory information is waveform, perhaps all sensory waveforms share at least these five basic functions and favor a particular niche in the electromagnetic spectrum as well as in the ecology of the human sensorium. So a "taste" can have timbral characteristics, "sharpness" of attack, etc. The same can be said for all other sensory input channels and their associated throughput.

In the case of sound and light, it is most likely that we will find interface algorithms for generating synthetic visual images from acoustic cues at the juncture of timbral & envelope characteristics and molecular [harmonic] resonance dynamics.

Using this approach as a springboard, perhaps a musicology of the sensorium can be fashioned with intervalic relationships between discrete channels of sensory input. This most likely would be intervalic — as in notes in a chord — though it might also be like musical parts in an orchestration. Imagine composing for the total *sensorium*!

Charles L. Dodgson, *Through the Looking Glass* [1871]

Way back in 1974 McLuhan said "The future of the book is the blurb." Right he was. Now, however, I see the future of the blurb as the portmanteau. There's no longer enough time to read highway signs as they whiz past. Today it must be quicker and more efficient.

Portmanteau is a French compound word that derives from the Latin *portare* [*porter*, to carry] and *mantellum* [*manteau*, a cloak]. It later evolved as British expression for a leather travelling bag or case adapted for use on horseback, and now refers to a suitcase or telescope case which opens into two equal parts.

number of recombinant particles—digitized bits of information awaiting fusion in neologisms [neurolojisms]:[8] neuroquantum, neolinguistic, eroticized verb sculptures & data-clusters of our own construction.

This glossary features most of the invented words above as well as a few I just couldn't bear to exclude.
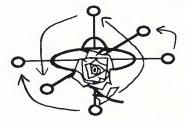
[1]**Accelebrate** Playful, skillful celebration of culture at accelerating levels of speed and intensity. [-ion] This game is played by encasing one's internal experience with accurate and poignant external articulations of technology

[2]**Reuncovery** It's like a treasure hunt of the feedback loop that connects the

psyche and culture, often with terrific resonance experienced in the dynamic between the two. A Yoga of excavating, applying, realizing and sharing of one's limitless potential.

[3]**Plightgeist** Trendy doom 'n' gloom scenarios favored and indulged in by mass culture. Rising intelligence of culture leads to smartyrdom, of course.

[4]**Zeitmeister** Media shaman.

[5]**Illiterati** New generation of post-literate MTV kids who are not effected by major political propaganda because of the alertial deemphasis of print media channels in favor of audial/tactile ones such as television and personal computers. The print medium is now so slow seen in the context of the speed at which we're living, so non-interactive by electronic comparison, that kids who reject "literacy" as a system of information transmission must now be recognized as a progressive elite.

[6]**Expressence** Essence, ex-perience, expression, and by psychassociation... effervescence.

[7]**Neurologian** One who's caste to voice the Verb of God, really! A genetic discourser who invents and reinvents human technologies for ever-smiling, higher-fidelity broadcasting of DNA trans-missions — the Holy Wisdoms of the central nervous system. And now we pause for her station identification: "This is CNS..."

[8]**Neurolojism** Neuroquantum, neolinguistic, refeminization and eroticizing of language as high-energy verb sculptures like the portmanteau or the macaronic. Macaronics are the multi-lingual/multidimensional puns used by James Joyce in Ulysses and Finnegans' Wake.

Chaostrophy The serendipitous finding of deeper levels of meaning and higher implicate order amidst seeming madness.

Alertia Tendency of the mind to remain at focus unless acted upon by a more fascinating stimulus.

Plethesaurus A naming dictionary for multiple personalities. [2] In it's day it had a wingspan of 40 feet.

Carbuncle Sam [-ism] Festering condition of outdated media icons as they slowly decompose in front of our eyes. [See Alertia].

Ding-a-Linguistics A science, artform and game of skill involving cut-n-paste and humor techniques for the reformatting and rejuvenation of traditional written and spoken language. A stepping stone towards the visual languages that will be characteristic of virtual reality constructs and renderings.
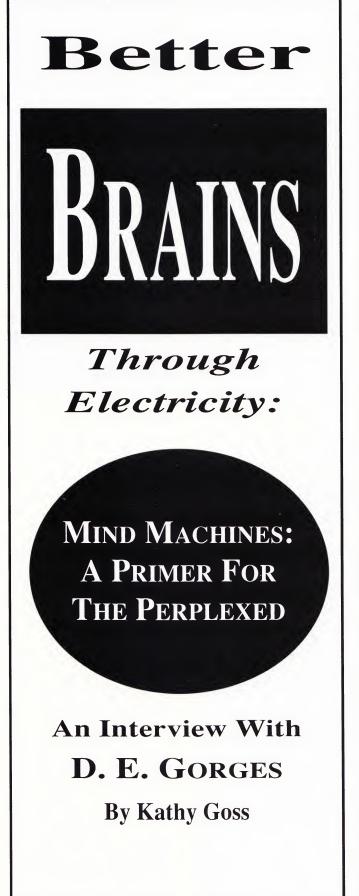
Jargonauts New breed of digital linguists and MTVisionaries who dare to playfully disassemble and reassemble bits of their language into funnier slogans to live by.

Smartyrs A martyr who revises a loser life-script as a winner life-script. [Also Smartyrdom.].

SMARTYRDOM — SEE YOU THERE!
No go! Create your own shimmering language constructs rich with experiential value, modeled and rendered for jetstream [jest-dream] home-delivery! I have seen the near-future of the conscious evolution of language... and she is the portmanteau. •

Better

BRAINS

Through Electricity:

MIND MACHINES: A PRIMER FOR THE PERPLEXED

An Interview With

D. E. GORGES

By Kathy Goss

T he wildest and wooliest frontier for New Age entrepreneurialism is the mind machine field. And the wildest and wooliest of them all is Denis Gorges, holder of patent #4,315,502. A uniquely flamboyant individual, his history goes back at least to the early seventies with M.R.U. (Mankind Research Unlimited) — the CIA lab that virtually spawned the New Age. His medical credentials may be nebulous, but his hands-on work in the development of mind machine technology can't be matched. And, to hear him tell it, he's sewed up every conceivable permutation on a light/sound machine using electro-magnetics in a "harmonically coördinated" way (back in 1976). And, though he comes across as the archetypal New Age huckster, there's something basically earnest and caring about him. Yet enemies abound. He's managed to alienate just about everyone in the mind machine field with accusations of patent infringement and violation of non-disclosure agreements. He and former cohort Michael Hutchison, author of Mega-brain, now speak through lawyers. Yet it is Gorges, more than anyone else, who has called out for the industry to police itself and really de-lineated the need for setting industry standards, lest the Feds step in. And if anyone knows how to mince that delicate tightrope, it is Gorges.

MONDO 2000: How do you describe your work?

D. E. GORGES: I'm a biomedical researcher and inventor as well as entrepreneur — not necessarily by choice, but by the necessity of the marketplace.
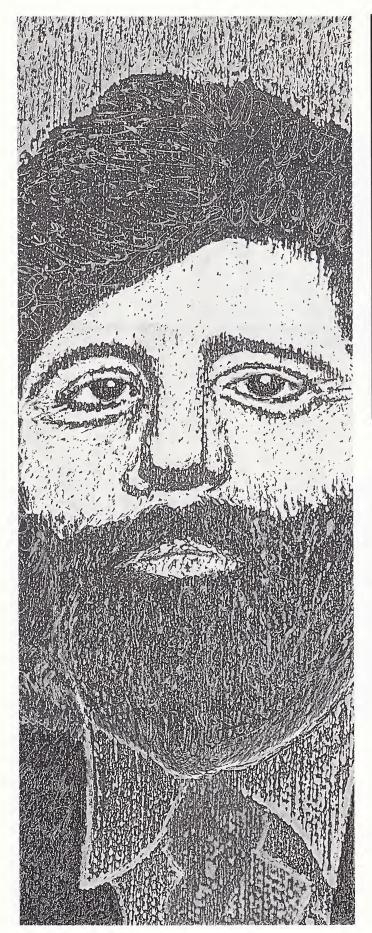
M2: I keep hearing that the government is going to start regulating mind machines. What does that mean for the industry?

DEG: The FDA already regulates the field, although they are slow to react until they have collected enough serious complaints. They already have plenty of headaches with new drugs and tryptophan and a lot of other things, so this is a minor problem to them at present, but it's one of very great concern to them. The law clearly states that any device that has a physiological or behavioral effect on the human system, or that makes any claims to affect behavior, must be pre-approved by the FDA for regulation, or at least reviewed by them to determine safety and effectiveness. Any manufacturer of a device must, by law, apply to the FDA, and the FDA makes a determination as to whether each device needs to be regulated as a medical device or not. So far the FDA has not chosen to regulate the field heavily, and it probably will not do so as long as manufacturers don't represent these machines as being medical or therapeutic devices and make claims of health benefits.

In addition to FDA review, the device also should have, as a minimum, an Underwriters Labora-tory approval, which is a simple safety test, and Institutional Review Board approval, which means it is considered safe for research purposes in universities and research institutions. These things are minimum requirements before the FDA will even review them.

M2: What kind of claims is it reasonable for manufacturers to be making about these devices?

DEG: Well, they should be making no medical or health claims.

Basically, they should be saying that this is a research device, and that there are possibilities in a number of areas which can be investigated. Until it can be proven that a device actually does something positive without negative side effects, no claims should be made about it.

M2: What about the relaxation effect that's been documented in research?

DEG: The relaxation effect has not neccessarily been documented for all machines, just because a few machines produce it. It has been documented in published research for the Synchro Energizer, most recently in studies conducted in 1989 by Drs. Laurel Brucato and Juan Abascal in Miami, Florida, in conjunction with myself and Ernest Friedman, M.D. as consultants. But all these other devices are not the equivalent of or the same as the - Synchro Energizer. The placement and type of lights is different; the color and quality of lights they use is different; the timing cycles, pulse rates and pulse width between the light and sound are different; the

electromagnetics, if there are any, are different. You can't use somebody else's research to prove that your product works. It's like saying that because Mercedes-Benz has done research to prove their car is safe, you can drive your Tonka Toy car on the freeway.

M2: Let's say you've got a light/sound device in your hands and you've already checked out what research has been done with it, and whether it has been officially tested for safety. What can you tell just from visual inspection of the hardware? What kinds of things should you look out for in evaluating a device?

DEG: You can start by looking at the arrangement and type of lights in the goggles. Lights should not be placed directly in front of the eye, but around the periphery. A light source directly in front of the iris will cause overfocusing and could produce eye strain or other more serious damage. Is there just plastic tape holding the light in place, in cheap sunglasses, or is there a safely made holder to secure the bulbs? Are the bulbs open to the eye, or are they sealed in plastic so if they shatter or overheat there's no way they can injure the eye? Also, the light sources need to be diffused and aimed or angled in such a way that there's full coverage to the eye. In a number of products the bulbs or LEDs are aimed at one segment of the eye, which can cause retinal burn and eyestrain. There are definite rules and regulations from OSHA about using any radiating light source near the eye. A lot of these goggles meet no safety standards what-soever.

M2: Why would OSHA have standards for light bulbs and LEDs around the eyes in the first place? What kind of equipment would use that in a practical setting?

DEG: Ophthalmological investi-gative equipment for eye tests, those kinds of things; equipment for studying evoked potentials, and so forth.

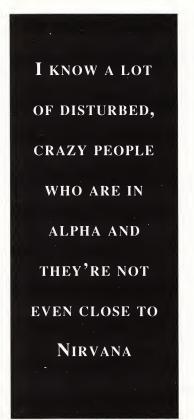**M2: Red light-emitting diodes in**

goggles are now often considered the industry standard. Why do you object to red LEDs?

DEG: First of all, extensive research over decades has shown that red light has a much greater tendency than other light to set off seizures, what's called a photoconvulsive response. This is especially true of intense, narrow-band red light used close to the eyes, with the eyes open *or* closed. A 1976 Japanese paper on this effect, by Takahishi and Tsukahara, cites more than a dozen previous studies from many different countries, in which these results were replicated again and again and published in respected scientific journals. In addition, red light has been reported in published research to produce reduced immune function, chronic fatigue, violent behavior, uncontrolled anger and addictive behavior.

But beyond all that, red LEDs, or any LEDs, are simply not appropriate for this kind of application. Red LEDs are designed to be warning lights and indicator lights, to be seen at some distance from the eye. They are designed to put out a narrow beam that, over a distance of a few feet, will spread out, but when you've got an LED right up in front of your eye it's directing very intense, very focused light at one point in the eye. Red is known to be a highly stimulating color. Some EEG testing equipment uses red LEDs to establish an evoked potential. Red light causes an immediate response comparable to the fight-or-flight response. It's like if I punch you; it causes an immediate stress response, so you can see an evoked potential. This test equipment is producing a stressor so they can observe the brain's evoked response under stress. So what these red-LED mind machines are doing is causing a stress response. They're exciting the system so much that it actually over-produces adrenalin, and after a short-term high you feel tired because it's overexcited you. If you're using overstimulating red LEDs clinically for a stress reaction in the short term, that's one thing, but if you're doing it for long-term relaxation, for ten, fifteen or forty-five minutes or longer a day, maybe more than once a day, that's not relaxation, that's exhaustion. There's a big difference. It may seem to feel like relaxing, but with true relaxation you feel very aware and very lucid and very much with it, energized and just mildly detached. With the exhaustion effect everything is kind of a blur and you feel anesthetized, you feel numb and drugged. The red-light devices cause withdrawal and numbness and anesthetization.

John Ott, back in 1976, in his book *Health and Light,* reported on his extensive research into the health effects of light. He found many adverse effects of chronic exposure to narrow-band red light. Now he's finally beginning to get some credibility because of a number of recent studies done at prestigious universities — Terman at Columbia, Kronauer and Czeisler at Harvard — on the effects of high-intensity full-spectrum light in treating seasonal affective disorder, jet lag, shift differential disorder, carbohydrate craving disorder, PMS and other light-sensitive disorders. If you buy a mind device that uses red, green or amber LEDs, you're missing an opportunity to receive the potential benefits of full-spectrum light. I believe that stimulation with pulsed full-spectrum light in the Synchro Energizer configuration has many of the benefits that have been demonstrated with these large-scale, high-intensity, full-spectrum lighting systems, and even some benefits they don't. This is an important area for research for us right now.

You should beware of any device that puts anything unnatural into your body, expecially into your brain. Red light is processed light; it's a very narrow band. The more processed something is, the more addictive it is. These so-called brain scientists are helping to put people

I KNOW A LOT OF DISTURBED, CRAZY PEOPLE WHO ARE IN ALPHA AND THEY'RE NOT EVEN CLOSE TO NIRVANA

into anesthetization; they're putting people into unconsciousness, because they're narrowing their awareness, not expanding it; they're leading people into further addiction rather than freedom.

Dinosaurs left the face of the Earth becasue they couldn't adapt. The Synchro Energizer System was designed to enhance adaptation. These cheap knock-offs are the hi-tech dinosaurs, because they're not going to help you adapt to reality. They may have a limited short-term effect, a quick buzz, but then people will get into an addictive pattern with them and not continue to grow and expand their minds. The public will buy them for a couple of years, and then they'll end up in the drawer and not be used, or they'll be removed by force from the market by the government.

M2: **What are the advantages of preset programs, as opposed to allowing users to create or control their own programs?**

DEG: We're heading into uncharted territory that is very poorly mapped, since there isn't a large body of knowledge in the area of stimulating the brain with light and sound in this way. Do not trust a device that enables you to do anything you want with light and sound, because there are some real dangers if you don't know what you're doing. You could be putting yourself at serious risk to your health and mental well-being. Having worked with light and sound and other stimuli for over 30 years, I can personally attest to the risks and dangers inherent in this technology.

The German magazine *Esoteria* in 1989 presented a round table discussion by prominent psychologists and physicians who were concerned about the use of light devices without clinical supervision, and about the lack of regulation of the industry as a whole. Among the issues they addressed were the dangers of physiological reactions such as seizures, and of anxiety attacks brought on by the surfacing of unconscious material. They reported some cases of psychotic episodes precipitated by misusing the devices in an untested and unsupervised environment.

At Sychro Tech, after much thought, we've chosen to have our public-use model, the Relaxman, offer only pretested, controlled programs that we've used and tested over a period of time and know to be effective and relatively safe. We're not claiming they're one hundred percent safe, because no one knows what's 100% safe. We keep track of who's using our devices and for what purpose, and we have a feedback system wherein our users agree to use our devices responsibly and report immediately any kinds of problems that they may experience, as well as benefits. In this way we can fine-tune our products and help our users receive optimal benefits for their time and money.

M2: **What kind of problems have been reported to you?**

DEG: We have had reports of

anxiety attacks brought on by the emergence of repressed childhood feelings, and some people have experienced a temporary mild mania from overusing the devices. Seizure-like events do occur under certain circumstances — people with previously known hypersensitivity to light or sound; individuals who are exhausted or dehydrated because of heavy physical exercise, so that the additional stimulus overloads the system and causes it to discharge; people who are using drugs or medication that make them light-sensitive or sound-sensitive; or people in certain pathological psychological states. Of course anyone with a history of seizures should not use a light/sound machine except under close medical supervision.

M2: What does it take to design a program for a mind machine?
DEG: First off, you need good biomedical engineering understanding, but more that that you need to understand the basic physiology of the brain and how a specific stimulus affects it. A lot of the programs in these other devices are junk, they're nothing. They just saw the Synchro as a light blinking and a sound beeping, and so they went and bought a cheap synthesizer with a tone in it and they made it beep, and they bought a cheap light source and they made it blink; and they made it blink and beep in the alpha-theta range as if that were doing the same thing as the Synchro Energizer. No heartbeat, no magnetics, no subharmonics, no multipulse ramping, and no tested programs, approvals, research to back the device up...

It's not enough just to come down in frequency. You have to sweep and create patterns that the brain will easily recognize and understand and continue to follow. There's an enormous amount of mathematics involved in how fast the brain will respond to a given complex signal. If you go from 15

cycles to 9 cycles over a one-minute period, you've got to figure what percentage of brains will respond 100 percent, or 50 percent, or 20 percent; and then you've got to figure for a broad population their overall neuroresponse, leading to a therapuetic outcome, and not stress and pain, anxiety, depression and addiction.

M2: So you have to know what you're doing to get consistent entrainment?
DEG: Absolutely, to get a powerful entrainment that continues in a positive direction. I can click my fingers and get a moderate short-term entrainment effect, but it's a kindergarten-level effect. Many of these other devices' programs are just over-simplifications. They're just pulsing at a single frequency at a time, the light and sound together, and they may be adjustable through a narrow frequency range. But they're not producing any subharmonics, so you're not addressing all areas of the brain, you're only addressing those cells which are closest to that specific frequency at that time, which means you're not getting much overall coverage. That doesn't expand you, it narrows you.

We know that any stimulus will cause an immediate evoked response, but that doesn't necessarily mean a particular type of evoked response is good or beneficial. Any neurologist will tell you that just because somebody's producing alpha, it doesn't mean they're in a healthy mental state. Too much of the industry has talked about getting you in so-called alpha or theta and all of a sudden you're supposedly in Nirvana. Believe me, I know a lot of disturbed, crazy people who are in alpha and they're not in or even close to Nirvana. All an EEG signal tells you is the rate of speed of transfer of information. That has relatively little meaning for specific states of consciousness. There may be a correlation, but there's no evidence whatsoever that

a particular brain wave frequency can be directly related to a certain definable state of consciousness. The brain never produces just one brain-wave frequency at a time anyway.

M2: There's a wide price range for mind machines. Is that a reasonable criterion for buying?
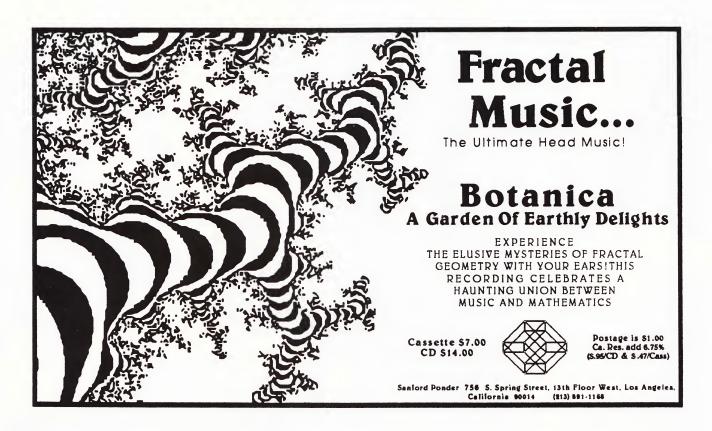DEG: Absolutely not! Don't shop just price. If some product has all the same features, all the same research, patents, and copyrights and it's their research on their device, not on somebody else's devices, and if it's cheaper in price, of course, go ahead and buy it. But when you're dealing with a brand-new technology, price should not be a major consideration, because you're taking incalculable and unnecessary risks. It's the same thing getting into any new, undefined technology early on. A lot of people got into the personal computer market early and bought cheap knock-offs. Most of those manufacturers are out of the marketplace now, and those people are sitting on dead computers with dead software they can't do anything with. The big players like IBM didn't even get into the micro market until after everybody else, and now they control the market. But the originators stay in the marketplace even if somebody buys them out, so it's better to go with an original, the inventor with patents.

M2: I assume that the final, decisive factor in selecting a machine is the user's subjective experience. How do people evaluate machines subjectively?
DEG: The only subjective experience of any value is long-term experience. Short-term experience, it's been proven time and again, is a combination of Hawthorne and placebo effect and pure ignorance. If anything is worth having, or doing, it will stand the test of time. If you are not absolutely sure about a device, borrow it, rent it, or go to the center that has the machine and use it over a period of time, by itself. Forget about going to some neuro-tech circus where you try fifteen machines in one day for a fat fee. By the end of the day you won't know what the hell did what to you. When testing something, test it by itself, for a period of time, and get your evaluation and feeling of it first. Then test something else in comparison. Don't test two or three things at once, it's pointless. Monitor objectively your responses, keep records, seek professional advice from someone who is experienced with this technology.

M2: As the pioneer inventor of light-and-sound mind machine technology, how do you feel about the present state of the industry?
DEG: I'd like to see more cooperation among serious people in the industry. I believe we should be working together to keep quality standards high and facilitate good research to enhance our chances of establishing the positive effects and eliminating the negative ones. At Synchro Tech we have tried to assume responsibility to make this technology available to the public without exposing them to possible harm. We have a broad worldwide group of 58 centers in this country and abroad, with strict standards, which provides an excellent data base for conducting research. This country's experience with drugs should warn us that it's not wise to let everyone go off on their own and experiment with anything they want to try. There's little chance that people are going to give up getting high; it could even be argued that it's an inalienable human right to change your state of consciousness. Some mind machines potentially offer a nontoxic alternative to drugs for altering consciousness, but the dangers of poorly thought-out, cheap technology are very real. •

NEW
DRUGS THAT MAKE YOU SMART

John Morgenthaler

"Last year a friend took me to hear Sun Ra and his Intergalactic Arkestra as a birthday present. I had just received a bottle of 800 mg. tablets of Piracetam from Interlab. My friend and I each took nine of the tablets (an attack dose, they call it in the literature) before entering the hall.

The music began 30 minutes later. I found myself able to concentrate as never before. I was completely lucid with absolutely no sense of intoxication. My ears felt as though they were being stimulated from all directions at once, but the feeling was entirely pleasant. For the first time in my life I could hear each individual horn's timbre (Sun Ra has about 10 horn players, often all playing massed harmonies). I was enthralled.

My friend has worked as a professional saxophone player. He, too, reported extraordinary hearing and concentration abilities. I recommend Piracetam as an alternative to getting 'high' before a concert or any other experience that improves with keen concentration."

The testimonial on the left is typical of people using Piracetam, an intelligence booster and CNS (central nervous system) stimulant with no side effects or toxicity. It is so remarkable in its effects and its safety that it has prompted the creation of an entirely new drug category called the nootropics.

The term nootropic comes from the Greek word meaning "acting on the mind." Since the invention of Piracetam by UBC Laboratories in Belgium, other drug companies have been scrambling to develop their own nootropics. Some of them being researched now include; Vinpocetine, Aniracetam, Pramiracetam, and Oxiracetam. As yet, there is no nootropic drug that is FDA approved for sale in the United States, but there is plenty of motivation on the part of the drug companies to get that approval — financial analysts expect the U.S. market for cognitive enhancers — smart pills — to soon be in excess of one billion dollars per year!

Nootropics are very interesting because of their lack of any demonstrable toxicity. They are not, however, the only subtances that increase intelligence. There are over 30 chemicals that have been shown to improve animal and/or human intelligence (learning and data processing of particular types of tasks.) Here I propose to present a practical, drug-by-drug guide to the use of the most interesting of these cognitive enhancement compounds and where you can get them.

Disclaimer: This article should not be interpreted as medical advice or an attempt to encourage the use of cognitive enhancement dru… uh, compounds. You must consult with a licensed physician for such medical advice. We don't even want you to experiment with these compounds. Nor do we wish to imply, in any way, that you should try to increase your intelligence or make yourself into a superbeing. Heaven forfend!

CENTROPHENOXINE (TRADE NAME: LUCIDRIL):

Centrophenoxine is an intelligence booster and also an effective anti-aging therapy. It has been shown to cause improvements in various aspects of memory function and a 30% increase in life span of laboratory animals.

One of the most widely recognized aspects of aging is the buildup of lipofuscin in brain cells (lipofuscin is the stuff that age spots are made of.) Centrophenoxine removes lipofuscin deposits from brain cells and reduces its rate of accumulation in young brain cells. It also rejuvenates the synaptic structure — the area where the actual transfer of information takes place between nerve cells.

Precautions: Centrophenoxine should not be used by persons who are easily excitable, people with severe arterial hypertension, or those subject to convulsions or involuntary musculoskeletal movements. The drug also should not be used by nursing mothers. Adverse effects are rare, but include hyperexcitability, insomnia, tremors, motion sickness, paradoxical drowsiness, and depression. There is no toxicity of centrophenoxine at therapeutic doses.

Dosage: Take 1000 to 3000 mg. per day. Centrophenoxine takes effect very quickly. You'll notice an increase in alertness and a slight stimulating quality.

Sources: Centrophenoxine is not sold in the United States. It can be purchased over the counter in Mexico or by mail from the address below.

CHOLINE/LECITHIN:

Choline can be found in several forms including choline bitartrate, choline chloride, or phosphatidyl choline. Phosphatidyl choline (PC) is the active ingredient of lecithin. All of these forms of choline will produce memory boosting effects, but PC has some unique effects as well.

Choline compounds, including PC, are able to pass through the blood-brain barrier, where the brain utilizes the choline to make acetylcholine (a neurotransmitter that plays an important role in memory). Thus, choline enhances memory by increasing the amount of acetylcholine available for memory and thought processes.

PC has some other important health benefits. It functions as a source of structural material for every cell in the human body, particularly those of the brain and nerves. It also aids in the metabolism of fats, regulates blood cholesterol, and nourishes the fat-like sheaths of nerve fibers.

Precautions: Any compound that acts like a precursor to acetylcholine such as choline, PC, or DMAE should not be used by people who are manic depressive because it can deepen the depressive phase. Choline bitartrate and choline chloride can sometimes cause a fishy odor or diarrhea. PC, however, does not have either of these effects.

Dosage: Take 3 grams of choline per day in three divided doses. If you're taking lecithin you need to take a lot more because only part of the lecithin is choline. Often the label will provide information on the quantity of choline per tablespoon. All forms of choline should be taken with one gram per day of vitamin B-5 so that the choline can be converted into acetylcholine.

Sources: Choline and lecithin are considered nutritional supplements and can be found at health food or drug stores. Commercial lecithin usually contains other oils and phosphatides besides phosphatidyl choline. Look at the label before you buy and

make sure the product contains more than 30% phosphatidyl choline. Also, you should taste your lecithin and make sure it does not taste bitter (this indicates rancidity). Much lecithin on the market is rancid. The best form of lecithin I know of is Twin Labs brand "PC 55" — it contains 55% PC and is always very fresh.

DHEA

Dehydroepiandrosterone (pronounced dee-hi-dro-epp-ee-an-dro-ster-own) is a steroid hormone produced in the adrenal gland. DHEA is the most abundant steroid in the human bloodstream. Research has found it to have significant anti-obesity, anti-tumor, anti-aging, and anti-cancer effects. DHEA levels naturally drop as people age and there is good reason to think that taking a DHEA supplement may extend your life and make you more youthful while you're alive. Additionally, DHEA may be an important player in cognitive enhancement.

DHEA is involved in pro-

tecting brain neurons from senility-associated degenerative conditions like Alzheimer's disease. Not only does the neuronal degenerative condition occur most frequently at the time of lowest DHEA levels, but brain tissue contains more DHEA than is found in the bloodstream. In an experiment with brain cell tissue cultures, Dr. Eugene Roberts found that very low concentrations of DHEA were found to "increase the number of neurons, their ability to establish contacts, and their differentiation." DHEA also enhanced long-term memory in mice undergoing avoidance training. Perhaps it plays a similar role in human brain function.

Dosage of DHEA ranges from 50 mg. to 2000 mg. per day. There is no solid information indicating an optimal dosage for humans, but, if you want to get serious, you can get your DHEA levels tested every few months (for about $65), each time raising the amount of DHEA you take. When your blood levels of DHEA reach what is normal for a 20-year-old human, then you're taking enough.

Sources: DHEA is now being used by many people with AIDS because of its immune enhancement and antiviral effects. DHEA is not FDA approved but AIDS buyers groups are able to sell it to members because the FDA has a policy of looking the other way when it comes to the activity of these groups. Try contacting these buyers groups: Alliance 7, 619/281-5360 in San Diego; or Healing Alternatives Foundation, 415/626-2316 in San Francisco.

HYDERGINE (ERGOLOID MESYLATES)

Research in other countries has shown that Hydergine improves mental function, prevents damage to brain cells, and may even be able to reverse existing damage to brain cells. Hydergine acts in several ways to enhance mental capabilities and slow down or

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PIRACETAM: AN INTELLIGENCE BOOSTER AND CNS STIMULANT WITH NO SIDE EFFECTS OR TOXICITY

reverse the aging processes in the brain. Its wide variety of effects include the following:

1. Increases blood supply to the brain.
2. Increases the amount of oxygen delivered to the brain.
3. Enhances metabolism in brain cells.
4. Protects the brain from damage during periods of decreased and/or insufficient oxygen supply.
5. Slows the deposit of age pigment (lipofuscin) in the brain.
6. Prevents free radical damage to brain cells.
7. Increases intelligence, memory, learning, and recall.
8. Normalizes systolic blood pressure.
9. Lowers abnormal high cholesterol levels in some cases.
10. Reduces symptoms of tiredness, dizziness, and tinnitus (ringing in the ears.)

One way that Hydergine may enhance memory and learning is by mimicking the effect of a substance called nerve growth factor (NGF). NGF stimulates protein synthesis that results in the growth of dendrites in brain cells. Dendrites facilitate communication throughout the central nervous system and are necessary for memory and learning. New learning requires new dendritic growth.

Precautions: If too large a dose is used when first taking Hydergine, it may cause slight nausea, gastric disturbance, or headache. Overall, Hydergine does not produce any serious side effects, it is non-toxic even at very large doses, and it is contraindicated only for individuals who have chronic or acute psychosis.

Dosage: The U.S. recommended dosage is 3 mg. per day; however, the European recommended dosage is 9 mg. per day, taken in three divided doses. Most of the research has been done at levels of 9 to 12 mg. per day. It may take several weeks before you notice the effects of hydergine.

Sources: Hydergine is available in the United States and you can buy it if you have a doctor's prescription, but keep in mind that your doctor may not be familiar with the uses I have discussed. It can also be purchased over the counter in Mexico or by mail from overseas (see below).
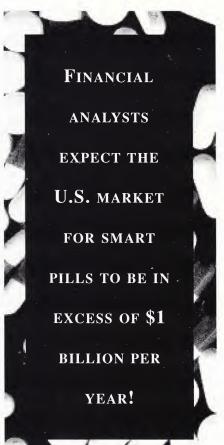
PIRACETAM (NOOTROPYL)

Piracetam is a cognitive enhancer under conditions of hypoxia (too little oxygen), and also improves memory and certain types of learning in normal persons. It is used in the treatment of stroke, alcoholism, vertigo, senile dementia, sickle-cell anemia, and many other conditions. The subjective effect described by a lot of people is that it "wakes up your brain."

A chemical analogue of the neurotransmitter gamma-aminobutyric acid (GABA), Piracetam seems to promote the flow of information between the right and left hemispheres of the brain. We know that communication between the two sides of the brain is associated with flashes of creativity.

Piracetam is so safe that one FDA employee has been quoted as saying that Piracetam can't possibly have any pharmacological effects because of its very low toxicity even in huge doses, hence the substance must be physiologically inactive(!).

The effect of Piracetam can be improved if taken with DMAE, centrophenoxine, or choline. When choline and Piracetam are taken together, there is a synergistic effect that causes a greater improvement in memory than the sum of each when taken

FINANCIAL ANALYSTS EXPECT THE U.S. MARKET FOR SMART PILLS TO BE IN EXCESS OF $1 BILLION PER YEAR!

alone.

Precautions: Piracetam may potentiate the effect of certain drugs such as amphetamines and psychotropics. Adverse effects are rare, but include insomnia, psychomotor agitation, nausea, gastrointestinal distress, and headaches. Piracetam has virtually no toxicity or contraindications.

Dosage: Piracetam is supplied in 400 mg. or 800 mg. tablets. The usual dose is 2400-4800 mg. per day in three divided doses. Some literature recommends that the first two days a high "attack" dose should be taken. I have noticed that when people first take Piracetam they do not notice any effect at all until they take a high dose (approximately 4000-8000 mg). Thereafter, they may notice that a lower dose is sufficient. The drug takes effect within 30-60 minutes.

Sources: Piracetam is not sold in the United States. It can be purchased over the counter in Mexico or by mail from the address below.

SULBUTIAMINE (ARCALION)

Sulbutiamine is a new compound that has been described as being like Hydergine only better. It has been shown to facilitate wakefulness, improve long-term memory, speed up reaction time, decrease anxiety, and increase overall resistance to stress.

Dosage: To combat fatigue take two 200 mg. tablets per day, always with breakfast or an A.M. meal, for a period of 20 days. Do not exceed three tablets at any time as this very powerful subtance may cause severe headaches. Other than this, Sulbutiamine has no known adverse side effects.

Sources: Sulbutiamine is not sold in the United States. It can be purchased by mail from the address below.

VASOPRESSIN (DIAPID)

Vasopressin is a brain hormone that is released by the pituitary gland. It improves attention, concentration, memory retention, and recall (both short-term and long-term). Vasopressin facilitates more effective learning by helping to "imprint" new information in the memory centers of the brain, a function which cannot be achieved without the action of vasopressin.

Cocaine, LSD, amphetamines, Ritalin, and Cylert (pemoline) cause a release of vasopressin. Frequent use of these drugs can deplete levels of vasopressin with a result of making you slow and dopey. If you feel burnt out, a whiff of vasopressin can transform your experience in about 10 seconds because it is a direct application of the

specific brain chemical that has been depleted.

Alcohol and marijuana, however, inhibit the release of vasopressin. A whiff of vasopressin when using these drugs will compensate for much of the dopiness caused by them.

Vasopressin is very useful in situations where there is a large amount of new information to learn. It increases your ability to memorize and recall specific factual information.

Precautions: Vasopressin occasionally produces the following side effects: runny nose, nasal congestion, itch or irritation of the nasal passages, headache, abdominal cramps, and increased bowel movements. Vasopressin has not been proven to be safe for use during pregnancy.

Dosage: Vasopressin usually comes in a nasal spray bottle. Most studies showing memory improvement have been done with a dose of 12 to 16 USP per day or about two whiffs three or four times per day. Vasopressin produces a noticeable effect within seconds.

Sources: Vasopressin is available in the United States. You can buy it if you have a doctor's prescription, but keep in mind that your doctor may not be familiar with the uses I have discussed. It can also be purchased over the counter in Mexico or by mail from overseas (see below).

VINPOCETINE (CAVINTON)

Vinpocetine, like Piracetam, is a nootropic drug and a powerful memory enhancer. It facilitates cerebral metabolism by improving cerebral microcirculation (blood flow), stepping up brain cells' production of ATP (the cellular energy molecule), increasing the brain's use of glucose, and increasing the brain's oxygen utilization.

Vinpocetine is often used for the treatment of cerebral circulatory disorders such as memory problems, aphasia, apraxia, motor disorders, dizziness, and headache.

Precautions: Adverse effects are rare, but include hypotension and tachycardia. It has no drug interactions, no toxicity, and is generally very safe.

Dosage: One or two 5 mg. tablets per day.

Sources: Vinpocetine is not sold in the United States. It can be purchased by mail from the address below.

Mail Order:

A little-known FDA ruling now allows the importation of a three-month personal supply of drugs as long as they are regarded as safe in other countries. Ordering safe but unapproved drugs is now legal under the new FDA pilot guidelines, Chapter 971. This compromise was made under pressure from AIDS political action groups because they were being denied access to potentially life-saving substances.

INTERLAB, a mail order pharmacy in England, was established in response to this new FDA ruling. INTERLAB carries a wide variety of drugs for cognitive enhancement, life extension, and the treatment of AIDS which are not available in the United States. They even carry Retin-A for the skin.
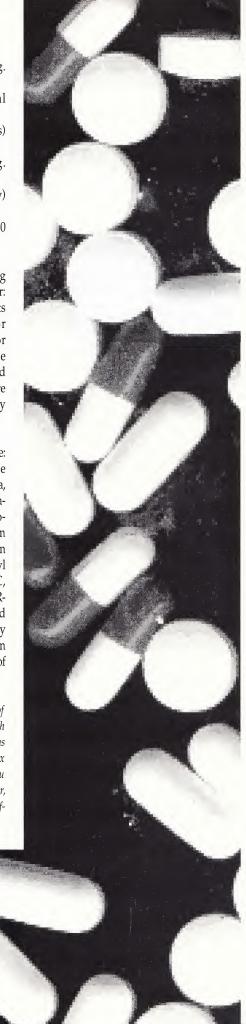
All of the drugs I have discussed here can be purchased without a prescription from them. You can request a price sheet by writing to: INTERLAB, P.O. Box 587, Newport Pagnell, Bucks MK16 8AA, England. Their prices are reasonable and, on some items, quite low. If you want to order right away send a personal check for the amount of the item(s) you want plus $6 for shipping (or $10 for accelerated shipping).

- Centrophenoxine (60 x 250 mg. tablets) $29
- Hydergine (100 x 5 mg. oral tablets) $39
- Piracetam (60 x 800 mg. tablets) $30
- Sulbutiamine (20 x 200 mg. tablets) $11
- Vasopressin (12 ml nasal spray) $22
- Xanthinol Nicotinate (60 x 150 mg. tablets) $9

You must include the following signed statement with your order: "I hereby declare that the products I am purchasing are not for commerical resale. They are for my own personal use only. The supply ordered does not exceed three months usage and they are used with the consent of my physician."

- Other cognitive enhancers include: xanthinol nicotinate, fenozolone (Ordinator), idebenone, ginkgo biloba, acetyl-1-carnitine, DMAE, pyrogluta-mate, RNA (ribonucleic acid), iso-prinosine, phenylalanine, phenytoin (Dilantin), pemoline, Ritalin, vitamin B-12. ACTH 4-10, L-prolyl L-leucyl glycine amide, niacin, vitamin C, ginseng, GH3 (Gerovital), PRL-8-53, R-58-735, ISF-2522, THA, metrazol and strychnine (the last two are very dangerous). We will be reporting on some of the more exotic members of the tribe in upcoming issues.

John Morgenthaler is the founder of the Cognitive Enhancement Research Institute (CERI). Send communications to John Morgenthaler, CERI, P.O. Box 483, Santa Cruz, CA 96061. If you would like a copy of the CERI newsletter, send $1 (for handling) along with a self-addressed, stamped envelope. •

S omebody up there must like the SubGeniuses. And that's ironic, because they sure haven't gone out of their way to appease God or any other deities — not even their own J.R. "Bob" Dobbs, toward whom they display a puzzling attitude combining extreme distrust, forced or at least reluctant worship, and sudden, unexpected spastic spurts of blind, unquestioning faith. That weird ambiguity has never been made more *clearly vague* than in their enigmatic third book, *Three Fisted Tales of "Bob."*

Whereas *The Book of the SubGenius* is their bible, and *High Weirdness by Mail* (a nonfiction exploration of kooks and crackpots) their encyclopedia, *Three Fisted Tales of "Bob"* is more like SubGenius pornography. Or children's bedtime stories, as the case may be. (There's actually nothing really sexy here, just a once-removed view of literary sex clichés.) It's an anthology of short stories by twenty authors, chronicling various crises in the life of "Bob" Dobbs, the legendary Saint of Sales and founder of the Church of the SubGenius.
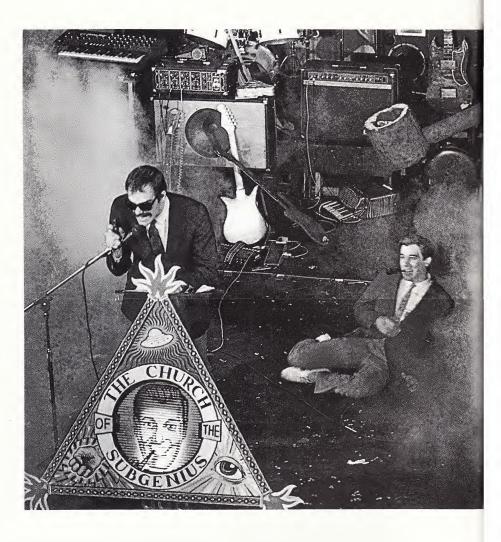
For those of you unfamiliar with the Church, you *must* find a copy of *The Book of the SubGenius*. A parody of religions, cults, occult systems, all forms of politics, ritual, belief systems… have I left anybody out?… It's simply the funniest book to come out in the 80's.

Like "cyberpunk," SubGenius is not just a genre, it's an active lifestyle, or mindstyle, propped up by books, radio shows, tapes, fanzines, T-shirts. It's related to, yet opposite from, cyberpunk in that it's relentlessly critical yet often eagerly low-tech. It represents the people who could choose, but chose to remain primitive. SubGenius is less like new appliance weaponry and more like dirt, old broken-up dead leaves, and the bugs crawling around in the mulch. Something that won't go away. Something you can fight but never defeat. It's more down-home, more good-ol'-boy, more Southern, and possibly wiser for its informality, than most other forms of literature or media philosophy. It's also mysterious and archetypal. It is a celebration of inexplicability, a rejoicing in what we *still don't know.*

It's also a celebration of imperfection. It clings in a very ornery way to the conviction that human beings are hilariously imperfect, that the very idea of striving for perfection (as taught in so many New Age schools) is pure foolishness. "Bob" Dobbs isn't smart, or even *good.* He's just lucky. Slack *is* luck, and it's usually low-tech — though certainly not to the exclusion of playing with electronic toys. SubGenius is a sort of bedmate to cyberpunk. The two genres share both audiences and creators — but SubGenius is actually intensely retro at heart. Its unspoken philosophy places the primitive aborigine who sits in the mud arhythmically hooting away on some weird flute way above the hyper, wired rebel battling it out in cyberspace. It doesn't deny technology; it simply doesn't *require* it. It's also non-political or, rather, above politics. No way is "Bob" going to save the world. His function is rather to make it *worth* saving.

Although the Church is probably too strange to ever be truly commercial, the Church elders have demonstrated some savvy in keeping their output just slick enough to stay in the marketplace. (This year they have produced two new books, one comic, and an amazing

Three Fisted Tales Of "Bob"

EDITED BY REV. IVAN STANG
SIMON AND SCHUSTER,
FIRESIDE BOOKS

video, none of them ready for prime time, but all of them *available* from big-city stores, thus placing them exactly, if uncomfortably, between underground and mainstream.) For this book, they recruited many writers whose names should be very familiar to *MONDO* readers: Robert Anton Wilson, John Shirley, William S. Burroughs, Mark Mothersbaugh, Lewis Shiner, Paul Mavrides. The majority of the stories, however, are by the "core unknowns" of the Church.

The stories bounce from poetic to realistic to surreal to juvenile to lofty, yanking the reader from one paradigm to another without warning. They aren't even all "stories." Burroughs' piece is an essay. Mothersbaugh's are one-paragraph koans with sicko illustrations. The psychedelic ravings by surreal Arkansas savant Janor Hypercleats are a sort of twisted hick-mutant monologue/rant. Brooks Carruthers offers a one-act play, and several SubGenii present divine revelations and prophecies in scriptural form. Waves Forest's novella is engrossing, but is essentially a vehicle for textbook specifics about alternative energy and medicine, complete with a disguised bibliography at the end.

The normally "serious" cyberpunk writers like Shirley and Shiner are herein being *funny* for a change. But it's in the stories by the SubGenius Hierarchy "Inner Adepts" that the mordant, very black humor on which the Church is predicated comes bubbling over the brim of the cauldron. The excerpts from Paul Mavrides' *World Without Slack* novel-in-progress probably represent the pinnacle of Dobbsian morbid yuks. Mavrides is generally known for his graphics, but here he demonstrates so thick a talent for the sardonic that it couldn't be cut with a chainsaw. (His story opens with a sadistic Jesus preparing his flying saucer fleet to invade Earth... for *revenge*.). Hal Robins — one of the geniuses behind the Church's radio outreach — gives us a Lovecraftian take-off that is more Lovecraftian than Lovecraft. Performance artist Michael Peppe creates very effective cognitive dissonance with his philosophical discourse between God and "Bob." The only truly "cyberpunk" story is told not by the cyberpunk contributors, but by Guy C. Deuel, a real-life mercenary.

There's also a delightful pirate yarn by David N. Meyer, and Ivan Stang's novella *The Third Fist*, by far the longest and dumbest of the stories. Stang, the impressario of the SubGenius talent pool, was the editor of the book, and one must assume that he was trying to prove something by making his story almost the diametric opposite of what we've been lead to expect from him. His action-adventure yarn, in

ITS PHILOSOPHY PLACES THE PRIMITIVE ABORIGINE... IN THE MUD ARHYTHMICALLY HOOTING AWAY ON SOME WEIRD FLUTE ABOVE THE HYPER, WIRED REBEL BATTLING IN CYBERSPACE

which Dobbs travels through time to save the universe (battling Nazis, dinosaurs, UFOs, the U.S. Cavalry, and other "bad guys" on the way), is more like a treatment for a George Lucas children's movie than a short story. Riddled with clichés, juvenile sex scenes, and junior-high-level violence, it's both an effective parody of old pulp kids' adventures like Doc Savage, and the dumbest, most retrograde piece of literature imaginable. On the other hand, it's probably the only story that J. R. "Bob" Dobbs himself would like.

Stang, in fact, is a main character in half of the stories, including his own. But he's not exactly presented in a favorable light, not even by himself. He seems to represent — both to the other authors and to himself — the carrier of a virus of normality that keeps cheapening Dobbs' pure innocence by trying to organize it and profit from it. A necessary evil. He has evidently dragged himself and his cronies into the mythos in a very deliberate, calculated way, perhaps to further blur the distinction between the picture itself, the frame around the picture, and the wall on which the picture is hung. Or maybe he just wants to make sure a single, live, accessible human name is identified with the SubGenius monster/product which, with its countless unauthorized fanzine progeny, is a trademark nightmare. Self-effacing and egomaniacal at the same time, he has taken the bull by the horns and turned it back towards its own tail. If Stang gets rich and famous off this maneuver, his cynical theories about celebrityhood will have been proven. If he doesn't, he will at worst have made an asshole of himself in a noble but failed experiment on public perception of the artist vs. the artwork. It's almost as if he dares the SubGenius "experiment" to pull off the impossible: to define not only itself, but also its parameters for definition... to abolish relativity and defeat the puzzle of Schroedinger's cat or prove that it cannot do so.

In all of the tales, Dobbs is savior, dolt, and devil simultaneously. *He is, at once, myth and reality*, and the best stories are both horror and comedy. The SubGeniuses seem to be engaged in a subtle mindfuck using the all-American illusion of blatant, cheap, money-grubbing crassness — to both parody culture and grub a little bit of money. It's a thin line to tread. In some of the live performances that I've seen, in some of the radio shows and in their infrequent newsletter, *The Stark Fist of Reality*, it barely comes off. But in this book, and in the original *Book of the SubGenius*, it strikes home like nothing else you'll find in the humor *or* the metaphysics section of your local book store. •

Review this? I'm supposed to... review it?! How about if I "review" my entire life, and all of World War II, and every atrocity in the Inquisition, and every B movie ever made, and every vision ever seen by every Opium Eater ever, all at once?

Huh?!

How about THAT?!

That'd be EASIER, pal!

Oh, of course I sat *down* to review it. Innocently turned it on. Chuckled at the video/cinematic /photo-stills collages, the "warnings" about the various side effects, the strange subliminal energies that the video could bring about. Yes I LAUGHED at those things. Well I'm NOT LAUGHING

Reviewed by John Shirley

NOW, ladies and gentlemen. Sleeved in humor and satire were these "warnings" about this tape's effect — but it's no *joke*, ladies and gentlemen, you'd better take those warnings seriously.

I didn't. Go ahead. Grab a handful of my hair and tug. The top of my skull will lift away neatly in your hands. I haven't succeeded in putting it back yet so it'll stay put. They knew it would be that way, of course. Stang. J. R. "Bob" 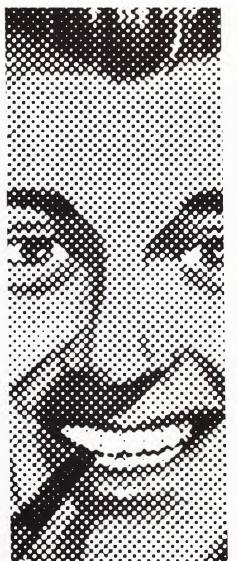Dobbs. Dr. Howl (the Reverend Hal Robbins), who does the brilliantly authoritative narration on this tape. Who calmly explains about the Conspiracy that's STEALING OUR SLACK. The Conspiracy that makes us have to undertake degrading, unhealthy pastimes such as... *jobs*. Non-enjoyable WORK. Employment. In short, the erasure of the true self.

The true self? The SubGenius hiding in all of you. I say all of you, because if you're oddball enough to read *MONDO 2000*, chances are you're one of the secret, superior race, the SubGenii — a race which superficially can have any color at all, any ancestral derivation: Oriental, Caucasian, Hispanic, African, whatever. As long as your true ancestors, beyond the genetic pale (or tan), are the Yeti, and not the Pink Apemen that Normals are descended from. It's shattering, Ladies and Gentlemen, shattering to learn that your heritage has been ripped off, that the aching emptiness inside you should have been filled with SLACK all this time... Shattering to turn away from the video, after an hour and a half in overwhelming re-imprint, shaking, see yourself in a nearby mirror and perceive — for the first time — the astral puppet strings that have bound us.

"Next to slack, the Nirvana known by saints is like an endless torment..." Dr. Howl tells us, and how true it is. Once they lay the evidence down in front of us, we cannot shield ourselves from the razor-edged truth. It slashes away at us, and makes a shred of our assumptions.

A joke? Dada and BullDada? Satire of cults, self-help scams, organized religion, and art itself? Hysterical impressionistic evocation of the collective unconscious, a collection of pirated images and blood-splattered original narrative that connects-the-dots in the great puzzle of the Media Mind; that paints in the paint-by-numbers bits making up the vast secret painting on the underside of your calvarium?

Yes. Music, comedy, wickedly meaningful media collages and fascinating extracts from actual footage of genuine SubGenius Devivals where such Rantmasters as the Reverend Dave Meyer and Ivan Stang and Janor Hypercleats and Sterno and Paul Mavrides and other performance art accomplices are showcased in all their bristling charisma with frightening hilarity?

Yes again. But don't think you're going to come out of this chuckling at some campy joke. No. Not if you have the persistence and vigor of "the attention gland" to make it all the way through this assault on the senses. "Too much," Reverend Meyer tells us, "is always better than not enough." The truth resonates here, like a nameless scream from the alley outside your tenement.

The scream of... crazed laughter?

"If you think it's all a joke," SubGenius Messiah "Bob" Dobbs tells us, "You'll never get the punchline... "

Review this? Oh sure. Maybe when I stop shaking...

"Death to the Anti-Bob and Pink Creatures who would defame our temple! DEATH! DEATH!"

But not for us. For us, LIFE. Praise "Bob."

[Note: order this tape by sending a pittance, $39.95, a small price for enlightenment, to Arise! Video, c/o Ivan Stang, P.O. Box 140306, Dallas, TX 75214-0306] •

Arise! The Subgenius Videotape

DEVISED BY REV. CORDT HOLLAND & REV. IVAN STANG

B lasting out of the granite heart of the Berkshires on the bitter end of a three day burn, I was looking forward to some long-delayed sleep. Through daggered winds, blinding sleet and grey fog, I piloted the venerable Black Zephyr V8 out of the winter mountains and smack into the web of coincidence.

The cassette machine had just broken, disgorging my most precious bootleg in ribbons of vinyl confetti onto the muddy cabin floor. On talk radio AM, bigots and spinsters traded misanthropic bile and bizarre mind sets. Meanwhile, FM 109.9 blasted out the greatest hits of the past decade, presaging a coming wave of 80s nostalgia. God help us.

Reviewed by S. Solomon

But, low down on the dial, in the college/NPR ghetto, odd sounds began to percolate and rasp out of the tuner. A *proud, stomping jig!* Bagpipes and whistles madly chasing over and 'round each other as gongs, middle eastern goat hide and temple bells collide, KEE-RACK, in a percussive explosion and resolve into something improbably melodious, even *pretty.* Somebody plays a guitar that sounds like the hormone-drenched mating call of an ancient Lizard King. "This is good. Good and weird."
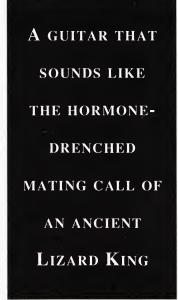
Diverting, mind warping and appealing all at once, it was a sound like no other; a sound that took the idea of "world" music to a feverish giddy pitch. As the bright music crackled into static and faded into the night, the DJ revealed the source: Canadian born, world-bred *Rare Air*. Just what the World really needs now, the first and one and only Celtic Bagpipe-Middle eastern-Scat-Jazz-Funk-Fusion band! It's *Rare Air* to the emotional rescue.

Just recently, I took the time to get better acquainted with the arguably demented, perversely contented cabal of musical sorcerers behind this deadpan-cultural acoustical brew. Having just purchased and already oft listened to their latest studio blend, "Primeval," I decided to make a telephone call. I spoke with Grier Coppins, co-founder, frequent composer and wizard of highland bagpipes, whistles, synths and *bombarde.*

MetaMusical Note: Experience Replayed Rare Air

A GUITAR THAT SOUNDS LIKE THE HORMONE-DRENCHED MATING CALL OF AN ANCIENT LIZARD KING

S. SOLOMAN: The pipes have such a haunting feeling to their sound. How would you describe them?
GRIER COPPINS: Obnoxious. Rude. Sometimes wispy or melancholy. Strange, though. That primitive tuning won't really sit on a piano, if you know what I mean.
SS: Now, how did you decide to play this weird blend of music? Did you wake up one morning and say, "Hey, guys, let's start a bagpipe-funk-fusion band"?
GC Actually, it began when we used to live together in Brittany, France, a pretty isolated area. We wanted to learn Breton music. That's where I learned the bombarde. We were always open to playing whatever interested us. It hasn't really been conscious, but the music has just evolved this way. We do what we want. We resist labels.
SS: How does that relate to the commercial side of things? That's not a convenient attitude in terms of marketing, doing music business.
GC: Well, one effect of the recent acceptance of what they're now calling "world beat", I guess, is that it's easier to make a living today. Just the same, we've never thought about really commercializing it.

Indeed, how would one go about commercializing so strange and rare a thing, this precious *Tonique Sonique?* It is a thing of the heart, from the heart; vitally and purely human. The process might well have gone something like this:
• 30,000 BC: Deep in the heart of Africa, humankind discovers that hollowed tree trunks struck with mallets produce a noise that scares even the lions.
• 10,000 BC: In a shallow cave, somewhere near the coast of France, spatular, Cro-Magnon fingers pluck a bison shank from the embers of a fire and fashion a flute with tools of stone. A song goes up to the heavens in prayer of a good hunt.
• 3,000 BC: High in the Himalayas, the eerie ringing of crude, bronze temple bowls greets the anticipated coming of a total eclipse.
• 600 BC: Under a leaky sod roof, in a neighborhood someday to be known as the Scottish Highlands, somebody sews a dried goat's bladder to a reeded flute, creating the granddaddy of all bagpipies. A rude, obnoxious bleating sound ensues, meant to invoke and placate some gloomy, grey-bearded northern god of foul weather.
• Late seventeenth century through the 1990s: Decline of Islamic and Oriental Empires and the rise of the decadent west; electricity tamed, modern chemistry emerges; phonograph, telephone and radio invented; a single generation spawns Elvis, Jerry Lee Lewis and Little Richard; kids discover even better methods of making their glands sweat, feet start jumpin' and gettin' their elders annoyed and concerned; Canada comes to the forefront in the search for world peace and universal love with the advent of *Rare Air;* fans across the face of the planet throng to hear the music.

Just that easy!

MetaMusic over & out. Segue to next. Stay tuned. •

I 'm stuck in a closet with Kinky Marie, Marie Osmond's psychotic twin sister, deep in the heart of Mormonville. She's been in that closet for seventeen years. Her last night out was with Charlie Manson.

I try to shoot her with my Colt .45, but miss. She strikes back with a vengeance, killing me — schoolteachers, astronauts and anyone with a sensitive stomach stop reading NOW — with Christa McAuliffe's arm.

That marks the end of my first stab at "Mormonoids of the Deep", the underground computer videogame masterpiece of Boise, Idaho resident Robert Carr.

In "Mormonoids," the object is to get out of Mormonville alive. In a player's way stands a loathesome - but - tongue - in - cheek collection of surreal villains. Losing — getting killed — is easy.

Reviewed by Paul Rubin

Carr's game is publicized by word of mouth. Players make copies on their computers and pass them from hand to hand; Carr requests an $8 donation but hasn't received many so far.

While Carr isn't a computer cracker on his Macintosh, he sees a distinct parallel between his efforts and the work that computer outlaws do.

"I think the kind of person who enjoys ripping off Ma Bell might tend to like 'Mormonoids'," Carr says. "The game doesn't usually attract the middle-class suburban computer buff."

Carr warns users at the start of his game that it "contains sex, violence, drugs, alcohol and rude comments about the Mormon Church." That's an understatement. "It's hard to pinpoint the exact moment that you decided to go on a drunken binge of monumental proportions," the game starts. "Perhaps it was when your employer let you go due to some 'short-term economic restructuring of the marketplace.' Or maybe it was the next day when your fiancee announce she was leaving you for a guy who lives in a '76 Ford station wagon and made his living sculpting likenesses of Judy Garland out of mashed potatoes."

"Video games are going to deal Christian mythology its greatest blow." contends Joyce Thompson, author of *The Blue Chair*. "Most popular games are based on quests (the search for treasure or for an ultimate truth). The guys writing Nintendo's *Kid Icarus* and other games are already into classical mythology. The fact that a kid can choose among worlds and plug into them will make established religion irrelevant. This creates a problem for long-held belief systems. The games will make them seem dull. They'll replicate Buddha's seven stages of enlightenment. You'll be able to experience Dante's trip through the Inferno, the ascending chakras of Kundalini yoga. Today's video designers will become the new priests."

a voice drones on and on and on, "No. No. No. No. No."

That's enough for me. I try to run from the droning voice, but get blown away in the effort. It's time to shut down the Mac for awhile.

"Mormonoids" creator Carr says he received some nasty mail after he invented it a few years ago. Boise's Macintosh-user's computer group refuses to stock it. Undaunted, Carr says the University of Idaho literary magazine has commissioned him to create a new game to celebrate Idaho's centennial in 1990.

"It's kind of a cyberpunk game," he says, "at least, a cyberpunk-meets-Idaho thing".

In this game, called "Spud", the player will drive a potato truck across Idaho, encountering jackalopes and other enemies along the way. You will stop to eat at the Pariah Restaurant, where they serve only endangered species — pandaburgers and rhino pot roast are popular. You will also have to contend, Carr says, "with neo-Nazi yuppies driving Mercedes with steel turrets on top of them".

I press the computer's mouse, and I'm in the game. I'm driving on a deserted rural highway in northern Utah. Down to my last six-pack, I have a wreck with a beer truck. Seeking to settle my nerves by grabbing some beers, I uncover several corpses identified as CIA field agents.

I also find a suitcase with a small nuclear device manufactured by Mattel for the CIA. It was on its way to South Africa when the truck crashed.

There's some shattered bottles of deadly bacteria, but — lucky me — my blood alcohol level is so high, I'll survive.

Soon, I reach the outskirts of Mormonville, where I run out of gas — "Your gas tank is drier than a Baptist county on Sunday morning" the computer says.

Mulling my fate, I come upon Molly Mormon, who recounts her "Godawful boring family genealogy." She runs me off the road by hurling her soiled undergarments at me.

On my trek through Mormonville, I meet up with a number of other creepy characters determined to inflict painful death upon me.

There's Beowulf Hernandez, a Salvadoran death-squad leader, CIA hit man and National Chairman of "Sadists for Jesus." And there's an "Amway Zombie" whose last words after I snuff him with a submachine gun are "I shoulda gone into Scientology instead."

After I erase the Zombie, I make the mistake of stepping into the Re-education Center. I'm watching a movie screen that's showing two young women. One is a rather dowdy female of the Mormon persuasion. The other is a bikini-clad babe holding a beach ball. The camera pans in on the babe, while
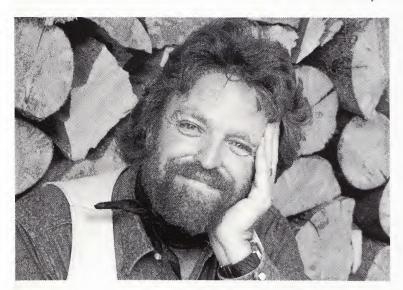
Mormonoids Of The Deep

John Perry Barlow is a retired Wyoming cattle rancher, a wordsmith for the Grateful Dead, and a professional techno-crank.

He was raised a Mormon, became an acidhead in college, and now believes pretty much everything. Or not. He is probably the only former Republican County Chairman in America who can call himself a hippie mystic without lowering his voice.

He is still married to his first wife and has three daughters under the age of 8. He lives in Pinedale, Wyoming, San Francisco, the Global Suburbs, and Cyberspace.

His book, *Everything We Know Is Wrong*, will be published by Viking Penguin whenever he can finish compressing it from Gestalt to ascii.

JOHN BARLOW BY ELAINE BARLOW

Dr. William Bricken left Autodesk for the green pastures of Seattle, where he's the principal scientist at the U. of Washington's Virtual Reality Studies program. Dr. Bricken got his smarts by spending long years sitting around in the woods in Hawaii and then receiving a multi-disciplinary education at Stanford.

Kathy Goss. A metaphysical performance poet and veteran observer of the lunatic fringe, Kathy Goss mines the resources of high tech, folk tech, and weird tech to create literary tools of liberation for sprawl survivalists. Among her collaborative book credits are *The Body-Smart System*, *Maximum Immunity*, and the *Complete Book of Homoeopathy*.

Ken Jopp writes and edits marketing material for a high-tech corporation in Minneapolis, and spends his quality time blurring the lines between animation, hallucination, and reality. When Ken read that Drug Czar William Benett wanted to have a father-to-son talk with Bart Simpson, he felt vindicated.

Kevin Kelly is editor of *Whole Earth Review* and the book *Signal*. His current obsession is "synthetic ecology."

Mark Landman is one of the new electronic illustrators using the Mac *exclusively* for his work. His airbrush and other tools lie forlornly in the corner collecting dust. Mark is also the editor of *BUZZ*, the new magazine of unusual graphic entertainment available through Kitchen Sink Press, #2 Swamp Rd., Princeton, WI. 54968

Ed Niehaus owns Niehaus Public Relations, an agency specializing in emerging technologies. In addition to a range of computer industry and new-media clients, the four-person agency does pro bono work for non-profit organizations, including Eric Drexler's Foresight Institute.

Durk Pearson & Sandy Shaw wrote the million-selling *Life Extension Book*, *Life Extension Companion*, and the *Life Extension Weight Loss Program*. They currently edit the *Life Extension Newsletter* (available at P.O Box 92996, Los Angeles, CA. 90009 $29.95 1 yr. sub.). Among their many and sundry other projects, they found time to script the Clint Eastwood film, *Dead Pool.*, also appearing in the film as punk rockers. They appear as regular columnists in the form of a running interview performed by Jude Milhon. Rumors that they are the culmination of a selective-beeding program cannot be confirmed at this time.

Howard Rheingold is a busy man. Currently he's writing *the* book on Cyberspace, due out next fall, and taking over as the acting editor at the *Whole Earth Review*. Rheingold has written *Tools For Thought* (Prentice Hall), *Excursions to the Far Side of the Mind* (Quill), and *They Have a Word for It* (Tarcher). He edits two newsletters, *Brainstorms* and *cyberspace times*. He is also credited with coining the phrase "virtual community," something that anyone who reads and *understands MONDO* is a member of.

Stephen Ronan was editor and Beat Generation expert at City Lights Books in the mid-80's and has served as consultant to various film and print media projects on the Beats, most recently the re-issue of Jack Kerouac's recordings by Rhino Records. As a performance poet, he appears regularly at various Bay Area venues and his mail-art has toured the country in a travelling art exhibit, *San Francisco/Science Fiction*. In his spare time he investigates, eats and paints magic mushrooms. Not to be missed is his occasional anarcho-surrealist zine *AMMUNITION*.

S. Soloman is a television producer who is working on astronomy programs for teenagers that merge Aldous Huxley with Edwin Hubble.

Rickey Vincent is The Uhuru Maggot, host of *The Funk Feast*, on KALX Radio in Berkeley. He is also a columnist at *The Daily Californian* and has written for *SF Weekly* and *Kommotion*.

Randal Walser. Randoid looks normal enough, but don't let him fool you. He poses as a daddy, husband, manager, scientist and programmer, but in fact he's a hopeless misfit and dreamer, an addict who has used computers for seventeen years to escape reality and immerse himself in whatever digital Nirvana he could invent or discover. His brain has been so addled by these years of abuse that he can't tell reality from a videogame. The scary thing is that now he's working with a gang at Autodesk (among other conspirators) who are endeavoring to make sure that *no one* can distinguish reality from a videogame. Fortunately, Randoid and his kind are easy to spot because they're always blathering about cyberspace, and trying to bum quarters.

Some of our Contributers

Next Issue:

CRACKDOWN! Hackers & Crackers 1990

21st Century Fashion

Peter Gabriel's RealWorld

Pamela Z.

Queen Mu's Strange Brews

George Clinton

Weird Math: Ralph Abraham,
Saul-Paul Sirag & Steve Wolfram

Butthole Surfers

New Aphrodisiacs
+
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mutants & superbrights.

Coming Soon:

William S. Burroughs and Timothy Leary in Conversation

George Coates presents
Spalding Gray in conversation with...

Matt Groening interview.

The Grateful Dead's Mickey Hart.

New Psychedelics for the 90's.

The RU-486 Underground.

Rudy Rucker's
"Return of the Killer Algorithms"

Cyberspace in Japan Report.

Psychik TV

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Jerry Rubin goes one step beyond yuppie.

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